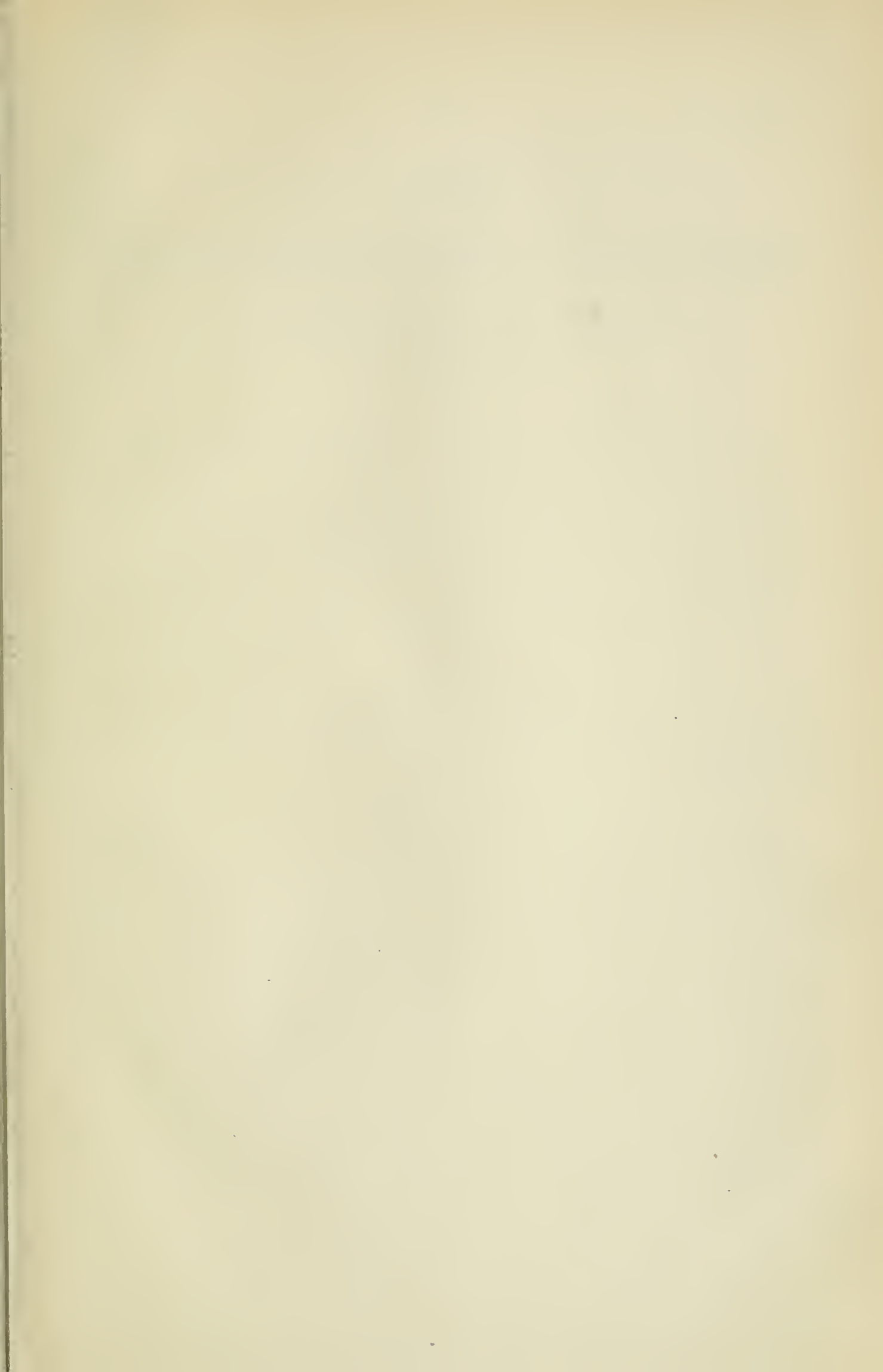


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THE OPHTHALMIC RECORD

*A Monthly Review of the Progress
of Ophthalmology*

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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX CHICAGO, JANUARY, 1911 No. 1, NEW SERIES

SMALL ROUND CELL SARCOMA OF THE ORBITAL CELLULAR TISSUES.

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Manhattan Eye and Ear Hospital, New York Ophthalmic and Aural
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The study of the following case has proved interesting from a pathological standpoint and I present a full history of conditions previous to and after the operation. The length of life after operation for the sarcomas of the orbit varies from 8 months to as long as 10 years, with an average of four years.

History: L. A., colored, male aet., 69. Family history was negative. The patient had served in the Civil War, and did hard work as a young man. Denies any venereal history. Had the usual diseases of childhood. The present trouble began about two years before. While he was chopping wood a piece flew up and struck him on the right eyelid and brow. This was followed by some swelling which did not give him any particular trouble. The swelling of the lid disappeared in a few days. About one year after the accident he noticed a swelling which continued growing larger and accompanied with some pain. The pain becoming quite severe and often kept him from getting his sleep and rest. He went to the Wills Eye Hospital, where he was seen by Dr. McClure. They removed a small piece of the tumor and under the microscope it was seen to be a small cell sarcoma. by Goldberg the pathologist of that institution. He was advised to let the mass alone and not to have an operation. He was referred to me by Dr. McClure and I had him under observation for a month and the pain continued getting more severe and the mass increaisng in size. He was especially anxious to have some relief from the pain and I agreed to remove the growth. His general condition at this time was quite good for a man of his years. There was slight arterio-sclerosis, and some enlargement of the superficial lymphatic gland. Some pulsa-

tion of the blood-vessels of the neck. Chest emphysematous and breath sounds bronchial in type. Heart enlarged in all its borders but not to a marked degree. A systolic murmur at the apex. Spleen not palpable and rest of abdomen negative. The liver palpated and percussed and found to extend from the fifth interspace to two fingers' width below the costal margin. No nodules felt.

The right upper eyelid is pushed up and a large tumor mass is seen. It seems to be above the eyeball. The mass is solid to the touch but not tender. It was smooth and no nodular areas were felt. It did not seem to have the resistance that we get from a bony growth and yet seemed firmer than a cyst.

There was marked proptosis, the eye being shoved down and in towards the nose. Good motion of the eye was retained. Only partial closure of the lids. It was quite impossible to shove the eyeball back into the socket by continued pressure. Tension of the eye was normal and the vision was found to be 5/60 O. D., 5/5 O. S.

Three months after I first saw the patient I attempted to remove the eye and tumor mass through the palpebral opening but this was found to be impossible. Making a curvilinear incision 6 mm. below the supraorbital ridge it was not difficult to make a complete excenteration of the orbital cavity, down to the periosteum. The sarcomatous growth was found to extend back in the optic sheath. It was quite impossible to remove all of the growth. There was considerable bleeding, which was readily controlled by the compress and bandage, and this recurred when the dressings were removed two days after. The patient left the hospital one week after the operation and the socket looked clean and smooth, but some swelling of the tissues.

I was able to follow this case for more than three years, during which time there was never any return of the growth in the orbit. His general health remained good and from the physician who attended him before he died told me that he did not think that there had been any return of the tumor in a metastatic form.

The growth was sent to Dr. McFarland of the Medico-Chi Surgical Medical college, who reported the growth to be a small, round cell sarcoma.

Sarcomas of the orbit is a rare form of tumor. Harting says that it is seen once in ten thousand, Lagrange once in fifteen hundred, and Weeks, quoting the records of the New York Eye and

Ear Infirmary, finds it occurring one in six thousand. Stirling reports 29 cases seen at Moorfields from the year 1858 to 1893.

In regards to the point of origin the sarcoma may begin in the lacryma gland, the periosteum, the sheath of the muscles and the optic nerve, and the walls of the orbit. In this case I believe that the growth began in the connective sheath of the muscles or the nerve. The sarcomas of the orbit from their pathological characteristics may be put down as small, round cell, spindle cell, mixed cell, fibro and osteo sarcomas.

It is very difficult and almost impossible at times to distinguish these different forms of sarcomas under the microscope. In this case a small piece of the growth was removed and sent to the pathologist, who reported that it was a small round cell sarcoma. This should always be done before we give an opinion in regards to the growths of the orbit, as to their malignancy. We cannot be too careful in making a diagnosis of the tumors affecting the orbital region, as it is quite possible to mistake them with lymphomata, and the tumor swelling of leukemia. Gumma of the orbital cellular tissue oftentimes present such similarity to the round cell sarcoma that we are only able to decide which of the two we are dealing with from the presence of direct evidence of lues.

The Wasserman test is now another means to help confirm our diagnosis, or the therapeutic test may be of aid.

The leukeamic swelling or tumors are usually bilateral but in any event a blood examination should always be made.

Knapp has seen two cases that were diagnosed as small cell sarcoma get well after treatment extending over a year.

In the case under consideration the diagnosis of small round cell sarcoma was made by three different pathologists.

The small round cell sarcoma is the most common form seen and is very malignant. This statement is borne out by the findings of such men as Valude, Le Grange, Knapp, Hirshberg, Birnbacher and Collins. This growth is more likely to give metastasis than any other form of sarcoma. It usually extends into the cranial cavity via the optic foramen or into the peri-orbital sinuses. The primary pigmented form is the rarest form seen affecting the orbit. Sarcomas of the orbit are more frequently seen in young people, who seem more predisposed, for some reason that we have not been able to explain. Hereditary does not seem to enter as a fact or in

the appearance of this tumor. There is often a history of trauma but this must not be considered as a true etiological factor, and it is doubtful even as a contributing element in the growth of sarcoma. The length of their duration when there has not been any interference may be from three months to eight years. They are rather prone to recur after operation, no matter how complete the operation may be. It has been for this reason that many surgeons have hesitated to advise surgical interference.

Cases have been reported where the growth has recurred eight months after the operation.

The treatment for sarcomatous tumors of the orbit may be either surgical, non-surgical or palliative. Fox reports a case where good results were obtained from the use of the X-rays. Leonard recommends the use of the X-rays after excenteration and claims that the rays have special value in the repair of the orbital tissues. Bull advises complete extirpation at the earliest possible period, while Knapp is decidedly against surgical interference. Knapp claims that the results of extirpation are utterly unfavorable, no matter how complete the operation. He says that it is questionable if we prolong life and thinks that we hasten the spread of the disease. Excenteration should be the operation of choice and it should be as thorough as it is possible to be done. Ofttimes it is most difficult to remove all of the growth as this form of sarcoma is without a capsule and finds its way into all parts and tissues of the orbit.

62 West 58th Street.

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CRYPTOPHTHALMIA.

W. EBERHARDT, M. D.,

MICHIGAN CITY, IND.

(Illustrated.)

To the two cases of cryptophthalmia described by Dr. David H. Coover in No. 5, Vol. LV of the *Journal of the American Medical Association*, I can add one which came under my notice about two years ago, through the courtesy of Dr. V. V. Bacon of Michigan City, who had delivered the child September 8, 1908.

I saw the baby the same day. The child, female, born at term, was perfectly well developed with the exception of deformed left

concha (microtia) and total bilateral symblepharon. The skin extended on both sides uninterruptedly from the supraorbital to the infraorbital ridge over spherical prominences, which were undoubtedly eyeballs. The prominence on the right was slightly, the one on the left decidedly larger than would correspond to normal conditions at this age. Movements of the left prominence could be detected from time to time.

Eye brows were present but no eyelashes at all. There existed on both sides a very faint, depressed line, corresponding to the place where the separation of upper and lower lids ought to have taken place.

The accompanying snapshot, though wretched enough, may help to make this description somewhat clearer.



It was decided to do at once an exploratory operation, in order to ascertain whether the eyeballs, which were undoubtedly present, had any functional value or not. The operation was done September 9, 1908 (one day after delivery), at St. Anthony's Hospital, with the able assistance of Drs. V. V. Bacon and J. W. Snyder. No anaesthetic was given. On both sides the skin and subcutaneous tissue were divided in a line corresponding to the above mentioned faint depression and retracted upward and downward. A continuous layer of conjunctiva was thus exposed, which was split in the same line as the skin, and separated with some difficulty from the underlying globe. The conjunctiva was then sutured to the skin, in the hope of establishing a permanent palpebral fissure.

The right globe was about the size of a normal one at this age, the left one considerably large; both presented a uniform dark dull appearance and resembled nothing more than a dark blue

GEORGE F. KEIPER.

grape with the bloom still on. There was no trace of pupil or fundus reflex, so that there was evidently no sight present.

After a few days the left globe shrank to almost normal size, the newly formed lids slowly grew over the globes, and became adherent to one another again. The operation was therefore without result, except in a cosmetic sense, as the child, when last seen, looked as if resting in normal sleep.

Some notes, for which I am indebted to Dr. V. V. Bacon, may be of further interest. The parents of the patient are blood relations, and, although there exists some doubt about the degree, very probably first cousins. A brother of the patient, now about four or five years old, suffered from some obscure nervous disease, chiefly characterized by tremor. A younger sister of the patient, born January, 1910, showed congenital abnormalities remarkably similar to the ones described. On the right side there was total symblepharon, while on the other side an apparently normal eyeball and lower lid were present, but the upper lid was firmly adherent to the globe along a line corresponding to the middle of the pupil. A corneal ulcer which developed soon after birth, led to destruction of sight in this eye.

PARINAUD'S CONJUNCTIVITIS.
WITH REPORT OF A CASE.*

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LAFAYETTE, IND.

Parinaud's Conjunctivitis, so called because discovered and described in 1889 by Parinaud of Paris, is a rare disease. To date but sixty cases, or thereabouts, have been reported in ophthalmological literature. Goldzieher reported a case in 1882, which he called lymphadenitis conjunctivae, the symptoms of which correspond to the symptoms of the affection under discussion. However, in his subsequent writings upon the disease under discussion he does not classify it with the cases of Parinaud's disease observed by him.

Definition:—A self-limited, unilateral, infective inflammation of the eye lids, with the formation of large polypoid granula-

*Read at the Fifteenth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, Cincinnati, Ohio, Sept. 19th and 21st, 1910.

tions on the conjunctival surfaces thereof, together with marked swelling of the glands of that side of the face and neck.

Cause:—Parinaud believes it to be due to animal origin. This view is not shared by such observers as Gifford. However, K. Hoor (*Monatsbl. f. Augenheil.* 1906, Apr.-May) in an article dealing with the forty-four cases reported to that date, believes that in two-thirds of them there was opportunity for animal infection. One of Barck's cases was a telegraph operator with no such opportunity for infection. David Webster (*Medical Times*, June, 1909), from his case, a young lady, does not believe the disease to be of animal origin.

The disease has been observed only in the temperate zones and most frequently in the autumn time.

The sexes are affected about equally.

It is liable to occur at any age. The youngest case on record is that of Schoeler (*Centralbl. f. prakt. Augenheilk.* 1906, S. 362), the patient being one and one-half years of age. The oldest is sixty-one. Seventy per cent of the cases occur under twenty-six years of age,

The right eye is more frequently affected because people, as a rule, are right-handed and thereby carry the contagion.

Pathological Anatomy:—As to the Gross Anatomy—We are confronted with a marked swelling of the eyelids of one eye, so pronounced as to close them together. From between the eyelids exudes a mucopurulent discharge which is usually slight in quantity or at most but moderately profuse. If profuse, it rapidly becomes scanty. The swelling of the glands is quite characteristic, beginning with the preauricular gland and extends downward and involving the submaxillary, parotid and cervical glands. In a case reported by Barck (*Transactions, Am. Academy Ophthal. and Oto-Laryng.*, 1908, p. 196) the preauricular was separated from the submaxillary and cervical glands, each being as large as an apple.

Eversion of the eyelids shows a characteristic swelling of the underlying conjunctiva into large granulations which are polypoid in character. Sometimes these are found on the ocular conjunctiva, though rarely. The cornea is but rarely involved. The case to be later reported in this paper showed corneal involvement. The only other cases showing such involvement are reported by Rohmer (*Annal. d. Ocul.*, 1894, T. iii, p. 360) and Basserres-Poujol (*Ann. d. Ocul.* XXXIX, p. 161).

Microscopically—Morax and Manouelian (*Recueil d'ophthalm.*, Nov., 1903), made an examination of a case of Chaillous and Toulfesco, by taking bits of the tissue of the affected conjunctival membrane and found the subepithelial zone of diffuse infiltration quite different from the infiltration of trachoma, and an absence of the giant cells and bacilli of tuberculosis.

Verhoeff and Derby (*Arch. Oph.* July, 1904), thoroughly investigated this disease, and found the cellular infiltration to consist of phagocytic and lymphoid cells with marked cellular necrosis. The lesion is superficial. Goldzieher (*Centralb. f. prakt. Augenheilk.* Jan., 1905), finds the "excrecences consist of a net-like tissue, in a condition of high grade edema, and differs from trachoma in the absence of round cells, which form the trachoma follicles. In both conditions the surface epithelium tends to proliferate, but in trachoma it forms narrow fungi-like processes, the trachoma glands, while in lymphom-conjunctivitis it penetrates in irregular masses, and the cells show a tendency to mucoid degeneration." Reis (*Graefe Arch. f. Ophthal. S.* 46, 1906) disagrees with Verhoeff and Derby, quoted above, in that he does not find the subconjunctival tissue in a state of necrosis. However, Sinclair and Shennen (*Trans. Ophthal. U. King. Vol. XXVIII.*) in reporting a case confirm practically the observations of Verhoeff and Derby in that they find "the formation and the subepithelial tissue of a variety of granulation tissue, crowded with cells and containing numerous young blood vessels. There were also alterations in the epithelium, with superficial erosions and minute areas of necrosis in the deeper tissues."

The tarsus was found normal by Bernheimer, after its removal for the cure of a case of his (*Monats. Kiln. f. Augenheilk.* 1806, S. 253).

Gifford (*Trans. West. Oph. and Oto-Laryng. Soc.*, 1898) believes "that the infection starts with the formation of a greater or less number of small abscesses in or below the conjunctiva. In this state the patient is seldom or perhaps has never yet been seen. When the abscesses break the discharge becomes profuse for a short time, and in most cases large granulations develop from the edges of some of the ulcerations or the small fistules left by the abscesses."

The preauricular gland in Barck's case showed fluctuation.

An opening into it brought forth only a small amount of pus, which was surrounded by broken down tissue.

While histologically it resembles tuberculosis in many points yet it is not tuberculosis in origin. The tubercle bacillus cannot be found and inoculation experiments are failures.

Bacteriology:—To date the examination of tissue and discharge for a specific bacterium, as a probable cause has been fruitless, and as Alt remarks after the examination of a case of Barck's (Trans. Am. Acad. Ophthal. and Oto-Laryng., 1906) "I was absolutely unable to stain any particular organism. If there is one it is too small to be seen by our present means." Often the Staphylococcus and B. Xerosis are found. The Streptococcus has been found by Rohmer (Annal. d'Occulist., 1894, p. 360) and Villeneuve (Theses de Paris, 1890, p. 95).

Gifford reports that in an examination made in three of his cases nothing was found but what was of secondary importance.

Stirling and McCrea (Montreal Medical Journal, Vol. XXIII) report finding a bacillus resembling the Klebs-Leffler bacillus. This was found for twenty-five days while the patient was under active treatment. The impression received by these investigators was that they were dealing with a less toxic form of the diphtheria bacillus or with a virulent form of the Xerosis bacillus, which it seemed to have correspondence with, although the Xerosis bacillus is recognized as innocuous in the eye.

Kornel-Scholtz (Arch. f. Augenheil. LIII. Ht. 1, P. 40) reporting a case resembling this disease, isolated what he believes to be the specific organism. Cultures made from nodules showed a small bacillus four times from five cultures. It was from 0.5 to 1.5 microns long and in chains of fives and sixes. They were negative to Gram. He also found it in smears from the lymph glands, though he could not cultivate them on the various media. It was pathogenic for mice and chickens. The corneæ of guinea pigs inoculated with the germ showed a diffuse opacity which cleared in a few days. According to Axenfeld, the bacillus was very like the B. Gallinorum, and belonged to the group of the polar staining bacteria like plague and hemorrhagic septicæmia.

Auerbach (Western Ophthal. Jan., 1909). found pneumococcus from the pus of a large preauricular gland. He considered infection from animals doubtful. He regards the necrotic areas of Verhoeff and Derby, and the plasma cells of Matys of no special significance.

Claiborne (Arch. Ophthal. 1905, p. 82) in the report of a case could find only staphylococcus pyogenes aureus.

Inoculation experiments were made on rabbits by Gourfein (Rev. Gen. d'Ophthal. Feb., 1907), and Sinclair and Shennen (Trans. Ophthal. Soc. U. King., XXVII, p. 39, 1907), with negative results. The staphylococcus was the only organism recognized. The same writers in reporting another case in Vol. XXVIII of the same Transactions, found two varieties of the white staphylococci from the necrotic areas of the conjunctiva, while from the glands of the neck were isolated staphylococcus albus and aureus. From a sinus was obtained streptococci.

Barck (Ophthal. Rec., 1909, p. 374) reports a case seen December 21, 1908, which he submitted to microscopic examination as to the excised follicles and smears. The results were negative in all respects as to the presence of any specific bacterium.

From the evidence at our command to the present time we are forced to the conclusion, at least that if the disease is due to a bacterium, our present means of diagnosis are inadequate. That it is due to an infection, there can be no doubt. That it is contagious is very doubtful.

Symptomatology:—In ordinary forms the patient's appearance is quite characteristic. The eyelids are markedly swollen and at first sight the appearance is not unlike that present in gonorrheal ophthalmia. However, the pus characteristic of that disease is wanting, and smears made therefrom do not show the gonococcus, of Neisser. The swelling takes place suddenly, and the discharge from between the eyelids is at first profuse but rapidly becomes scanty. Eversion of the eyelids shows the conjunctiva thereof to be the seat of very large granulations. These may be polypoid in character and pedunculated. There may be superficial, greyish ulcers present between granulations. This condition of affairs may extend itself to the ocular conjunctiva as well.

The cornea is usually unaffected, though in the case to be reported by the writer, such an affection took place, and healed so that its site shows but very little of the former trouble. The corneal trouble looked like the shedding of the epithelium over about one-sixth of its lower portion and was not stained with fluorescein solution. It presented none of the appearances seen in the ordinary corneal ulcer. Similar appearances have been recorded by at least two other observers as quoted above.

The disease manifests itself by marked swelling of the glands of the face and neck of that side. In my own case that swelling was very marked in the preauricular gland as well as in the parotid, submaxillary and superficial glands of the neck. The glands seemingly would go on to suppuration, but that condition of affairs is very rare indeed judging from the published cases. The glands are liable to be very tender on pressure. The adenopathy is liable to precede the conjunctival lesion as in a case reported by Gourfein (*Revue d'Ophthal.* Feb. 28, 1907).

The ocular conjunctiva frequently shows chemosis as in the writer's case.

While it is the rule for the disease to be unilateral, yet Chaillous and Tufesco (*Recueil d'Ophthal.* Nov., 1903), reported a case where the disease was bilateral, both eyes being affected. Parinaud saw the case and concurred in the diagnosis of the disease.

The temperature is usually above normal, never exceeding 101 degrees and then only for a day or two. It gradually declines and in a week or two it becomes normal.

As to the symptomatology, Gifford suggests two classes may be differentiated, one with granulations resembling those of trachoma, and the more numerous cases in which polypoid character of the granulations is present.

Diagnosis:—The disease is to be differentiated from trachoma and tuberculosis. From trachoma, it may easily be done because this disease is unilateral, while in trachoma both eyes are usually affected. Moreover in trachoma involvement of the lymphatics does not take place. The cornea is very seldom involved in this disease whereas in trachoma the reverse is the case. Then too Parinaud's disease yields readily to treatment for so severe a disease, while trachoma is liable to be a very rebellious trouble to treat. Pannus is very frequently seen in trachoma, but not in Parinaud's disease.

From Tuberculosis:—Axenfeld in his work "Bacteriology of the Eye," well sums up the situation in the following words—"In spite of the many points of histological resemblance, it cannot be said that tuberculosis is a likely cause of Parinaud's conjunctivitis. Every inoculation has failed, and search for the *Bacillus Tuberculosis* has also been unsuccessful."

From Syphilis:—There is no subsequent skin eruption, neither

suppuration of enlarged glands, nor induration of the eyelids and the absence of these signs serve to differentiate this disease from syphilis.

From lymphoma of the conjunctiva of adults:—Parinaud's disease differs both clinically and histologically.

Prognosis:—The disease is self-limited and tends to get well of itself, in from two to six months. So far no cases have been reported in which material damage to eyesight resulted. In the writer's case the duration of the disease was three and one-half months, and though the cornea was affected, the area of affection was below the pupil and no damage to vision resulted. So far from the cases reported we seem to be justified in telling patients that their prospect for perfect recovery is good. All reports concur that the eyelids are restored to a normal condition. The adenopathy disappears and leaves no trace of its former trouble. To date no recurrences have been reported. It is to be confidently hoped that one attack will immunize against like trouble in the future.

Treatment:—Parinaud recommends the use of nitrate of silver in solution. In Gifford's cases he used sulphate of copper and a two per cent solution of nitrate of silver. His opinion is that where the granulations are few, to clip them off, and to cauterize any ulcerations that may exist. Goldzieher believes in cutting off the granulations, checking the hemorrhage with the galvano-cantery, using a one per cent (?) solution of bichloride of mercury, and the internal administration of iron and arsenic. Griffin in his case removed the granulations by scissors and applied at the same time a twenty-five per cent solution of nitrate of silver. Bernheimer in his case after a prolonged treatment and fearing permanent damage to his patient's cornea, excised completely the affected conjunctiva, and the underlying tarsus, which as noted above he found to be normal. After five months his patient left the hospital cured, but with the cornea affected. Gourfein treated his case with applications of a two per cent solution of nitrate of silver applied to the eyelids, everted, also hot applications to the eyelids and likewise to the swollen glands. Internally he gave cod-liver oil. Cure was effected in a little over two weeks. Jocqs secured results with the galvano-cantery. Shoemaker found a one per cent solution of nitrate of silver sufficient for his case. Dehenne

and Bailliart secured rapid recovery in their cases by "thorough washing out of the diseased conjunctiva with a solution of the cyanide of mercury, 1:10,000, massage with a one percent yellow ointment daily, and lightly cauterizing the granulomata with a two per cent solution of silver nitrate." Barck in reporting his case states "all the excrescences were removed with scissors and a number of the yellow infiltrates were punctured and afterwards squeezed out with the trachoma forceps. There was hardly any reaction. The remainder of the yellow infiltrates were treated in the same manner one week later. The improvement was a very rapid one. After the surgical treatment, daily applications with a one per cent solution of sulphate of copper were made. Internally the patient was given arsenic and iron." In Webster's case, bandaging the eye favorably influenced the course of the disease.

These quotations are made to show that as yet there is no agreement as to what is best to be done in treating any individual case that may show itself to us in the future.

The treatment of the writer's case is given in the case report appended.

Author's Case:—Walter B. aet. 18 of Otterbein came to see me May 25, 1908, because of a sore eye. He works on a farm and hence helps to take care of the stock thereon. The whole right side of his face was much swollen and tender, especially the glands of the neck. The eye was swollen shut, the lids being thick and heavy. Both the palpebral and the ocular conjunctivae were much swollen, the latter being in a state of chemosis. It looked like a case of gonorrheal ophthalmia although the lids did not have that board like feeling as we see in the latter disease neither was there the characteristic purulent discharge present. There was but a slight discharge from between the lids. This condition was present now for one week. The cornea was clear and unaffected. The iris showed no inflammation and readily responded to light and shade. The patient's temperature was but slightly elevated, and otherwise he seemed normal. The most peculiar thing about the case was the appearance of the everted upper eyelid. It seemed to be swollen into one huge granulation, under the overhanging edges were some smaller ones. These were quite soggy, but did not bleed readily to manipulation. All seemed

to lack the pedunculated appearance described by other writers. The lower lid showed a similar condition.

The other eye was normal and remained so.

A bacteriologic examination repeated several times revealed no characteristic bacteria.

He was sent to the hospital for treatment, which consisted in a daily application of a two per cent solution of nitrate of silver to the everted conjunctivae, and in bathing the eye every hour during the waking hours with a compress wrung out of water as hot as the back of the hand would stand. Every three hours a ten per cent solution of protargol was dropped in the eye. Every hour the eye was flushed with the following collyrium:

R

Zinc PhenolsulphonatGr. j.

Acid BoricGr. x.

Aquae Dest. j.

Between treatments and bathings the eye was kept bandaged.

Internally he was given several purges of calomel, and quinine and iron during his stay in the hospital.

After a few days, the iris seemed to be sluggish and discolored. A one per cent solution of atropia sulphate was instilled every four hours until combated.

At the end of the second week of his stay in the hospital there appeared in the lower portion of the cornea an infiltration involving the substance thereof, but not the superficial layer. It refused to stain with fluorescein solution. The resulting opacity is negligible. His vision is normal. He was dismissed from the hospital, June 28th, with the conjunctiva smooth and normal.

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RECOLLECTIONS OF A VISIT TO PROF. HERMAN
SNELLEN, SR.

WITH A BRIEF BIOGRAPHICAL SKETCH OF HIS LIFE.

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DENVER, COLO.

It was a beautiful morning in August, 1899, that we left the Hotel Pays Bas in Utrecht and were driven through the streets of the quaint old town, along linden-lined avenues and across stone bridges spanning the deep dark waters of the canals, past Oorsprong Park, on which faces the handsome residence of Prof. H. Snellen, Sr.

Although it was early, we were bidden to call at that hour, for like most men of action, the days were usually too short for



him and he began his duties as soon as he had breakfasted. We were received with marked cordiality and we found him as genial and courteous in his home as he was polished and learned in public life. As he conversed his blue eyes would twinkle and light up his classic face. His broad forehead was surmounted by a wealth of white hair, which clustered in curls around his temples.

He was enthusiastic over the coming meeting of the Ninth International Ophthalmological Congress, which was soon to convene in his home city and of which he was later elected president. All of those in attendance at that meeting will remember his activi-

ties in connection with it. It was a pleasure to listen to his scholarly discussions, speaking each of the three languages of the Congress with equal ease and correctness.

The Congress and the new building of the Netherland Eye Hospital, of which he was the medical director and which had only recently been completed, were the chief topics of conversation. This model eye hospital was built through his efforts, built for a charitable institution and as a memorial to his associate and life-long friend, the great Donders. It was in every way a work of love.

Proceeding to the hospital, we were shown over it and all its interesting features pointed out to us. The building is in the style of the early Netherland architecture, which is partly gothic. The walls are of light brick with arches of the same material and keystones of Marley stones. The arches all stand on foundations of granite. In the center of the projecting front is the main entrance. It has a frame of sandstone and above it is carved the rising sun, a symbol of the coming light. The large entrance doors are made of teakwood and are beautifully carved.

On each corner there is a tower forty meters in height. These have large windows of stained glass. The one standing up to Donders street contains a clock, which has a beautiful dial of polished lava. On each side of the towers are placed two stones on one of which is the inscription, "Nederlandsch Gasthuis voor Ooglijders. (Netherland Hospital for Eye Sufferers), and on the other Prof. Donders' motto, "Liefdadigheid is de grondslag van het geheel," (charity is the foundation of all).

On the east wing is an octave tower surmounted by a slender and graceful spire. This side of the hospital is separated from the street by an iron fence and from it one has a beautiful view of the Eastern Royal Way.

Inside of the hospital all luxury is avoided and the beautiful simplicity of the architecture gives a pleasing impression. The only real luxury to be found is plenty of room and light.

One of the first things that attract the attention of the visitor on entering—both because of its beauty and appropriateness—is a magnificent bas-relief representing Prof. Donders examining a charity patient. It is placed in the wall of the western tower. In the group one recognizes Prof. Snellen, Sr. The whole is a work of the highest art and will well bear a detailed study.

Opposite the entrance is the hall that leads to the lecture room. It, as well as all the large rooms destined for the treatment of the sick, receives its light from the north. Off from the lecture room are two dark rooms, each furnished with eight lamps. East of the lecture room is the clinic room where the boarding patients are treated. Next to this is a waiting room, which opens onto the garden; this is called the garden room. To the west of the lecture room is the polyclinic and opening into this is a room for the treatment of children. The waiting room for the non-boarding patients is in the extreme end of the east wing. This plan separates the home and outside patients. They only come together when the professor shows them to the students.

The second floor is exclusively for operative cases. The operating room is also on this floor. The windows of the operating room are all on the north side and are provided with curtains for the regulation of light. The walls from the floor to the ceiling are painted dark gray, the whole giving the impression of quietness and rest.

It is impossible in this brief description to point out the beauties and conveniences of this model eye hospital. One must visit it in order to appreciate it. It certainly answers the purpose for which it was built and may it always remain standing as a monument to the great and talented Donders, whose scientific work was the inspiration of its erection.

Although just previous to this time, Prof. Snellen had severed his connection with the university, feeling that he should share part of his work with the younger men, he was seemingly in his prime. He took active part in the entertainment of the guests as well as in the scientific programs of the sessions. He seemed to make each and every one feel at home in his native city and one even felt closer to Holland because of the personality of this leading countryman of hers.

Professor Snellen was born on February 19, 1834, at Zeist, a beautiful village not far from Utrecht. He was the son of a physician. In 1851 he entered the University of Utrecht to study medicine. It was as a medical student that Donders became interested in him and his work. His first contribution was published in 1845, while he was yet a student, and indicated a tendency for original research. It was "On the Influence of the Pneumogastric Nerve on the Movements of Respiration." Following his thesis "An Experimental Study of the Influence of the Nerves on In-

flammation," he was given the title of Doctor of Medicine. It was in this thesis that he predicted the observations of Magendie regarding the etiology of keratitis following the division of the trigeminus nerve. A year later he was given the degree of Doctor of Surgery. He then began the practice of medicine in Utrecht. At this time Donders was conducting a polyclinic there and in 1858 when the first Netherland eye sanitarium was opened, Snellen was appointed first resident assistant. He was in general practice at this time and continued in it for four years. In 1862 he was made director in the Augenheilanstalt, Donders still occupying the position of director in chief. From this time on Snellen gave his time entirely to ophthalmology and became an expert operator. His fame as an operator was not only known and appreciated in his own country, but it spread abroad. He devised many new operative methods and improved the older ones. In 1862 his *Optotypen* was published and it was probably through these that he became most widely known, not only among ophthalmologists, but throughout the entire medical world in every civilized country. Today Snellen's test types are standard and can probably be found in every physician's office throughout the world. Snellen originated many methods for examining the eye and simplified and improved many of those already employed. These were published in the "Functions—prüfungen des Auges" (Demonstrations of Eye Functions), which he and Landolt edited for the *Handbuch von Graefe-Saemisch*.

In 1877 he was appointed professor of ophthalmology in the University of Utrecht, having previously refused a call to Berne, and also to Leiden. He declined these, we are told, because he did not wish to sever his close association with Donders, for whom he had always had the greatest admiration.

In 1884 Snellen became the successor of Donders as director of the eye sanitarium at Utrecht. He threw his whole soul into the work and as the result not only carried out the ideals of Donders, but made the institution one of the leading centers of ophthalmology on the continent. He remained the head of this institution until 1903. From this time on he was forced to relinquish much of his activity owing to poor health. He was greatly disappointed in not being able to complete the collaboration of the operative science in the *Graefe-Saemisch Handbuch*. About this time he withdrew to private life and for two years gave himself up to the

quiet of his home. On the 18th day of January, 1908, he died of pneumonia and in his death the profession of ophthalmology lost one of its greatest men. W. Koster, writing in the *Zeitschrift für Augenheilkunde* at the time, says:

"Ophthalmology loses in Snellen a leader, especially in practical ophthalmology, for the art of operation and the methods of investigation and diagnosis owe much to him. Although due to his constant activity in his practice, the numbers of his publications are not so numerous, Snellen nevertheless understood how to disseminate his ideas over an extended field. In diligently attending the special congresses, he was enabled to remain in touch with the leading men in our domain. Especially did the Heidelberg association, of which he was a member for a long time, afford him excellent opportunity to acquaint his brother specialists with his new observations.

"The memory of Snellen, who constructed the ground work for the development of ophthalmology, shall ever be held by us in high esteem."

Note—For the main points in this biography, the author is indebted to an article in the "*Zeitschrift für Augenheilkunde*," by W. Koster, T. T. Blaise, translator, *Annals of Ophthalmology*, Vol XVII, No. 3.

CATARACT OPERATION.

BY MARY MURDOCH MASON.

"Beneath his wrist there stirs a sun-god's thought.
 A strong magnetic current swiftly flows
 Through palm and finger-tip, and power bestows
 On tiny blade of steel, with promise fraught.
 Up toward the eye the charged blade is brought.
 Marble, moonlit, the arched cornea shows,
 The iris, lying lakelike in repose,
 And the deep pupil where the soul is caught.
 'Let there be light,' he says—'Let there be light.'
 And solemn as the sign of cross, the hand
 Performs the miracle. At that command
 The pulsing thought leaps toward the blind man's night,
 Symbolic, like a dove's flight to its nest,
 The haloed hand drops down and is at rest."

—(The Doctor's Factotum.)

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Regular meeting, held October 17, 1910, with the president, Dr. W. A. Fisher, in the chair.

Injury to Eye by Buckshot.

Dr. George F. Suker reported the case of a young man who in 1903 was shot in the right eye with buckshot. Several shot passed through the nasal wall, entering the left orbit, scraping the upper portion of the globe and causing partial detachment of the retina. Sight was fairly good for about five years, when it began to fail, gradually getting worse and worse. A skiagram was made and showed that a shot was pressing on the optic nerve. The disc was partially choked in the upper quadrant from the pressure. A Kroenlein operation being possible, the shot was extracted from the optic nerve. Vision then was about three feet. Four weeks afterward vision was 20/100 and has remained so.

Optic Neuritis Treated by Tuberculin.

Dr. W. E. Gamble reported the case of a physician suffering from an optic neuritis in which excellent results were obtained from the injection of tuberculin.

Discussion.—Dr. L. E. Schwarz had a case similar to Dr. Gamble's, due to la grippe. He had one hundred and five fits, extending over a period of eight or nine years. During that time the field for form perception never suffered material damage, whereas the fields for colors fell and rose and then settled down to about the size they were when at their best. He did not suffer a marked contraction in any field except for red. Vision was 20/20 throughout. There was a marked optic atrophy.

Dr. E. K. Findley saw this case in the early stage, but the fact that vision was markedly reduced made the prognosis unfavorable. Under mercury the patient grew worse. Tuberculin seemed a last resort, and it was rather surprising to note the amount of vision the patient now has with so much atrophy.

A Case of Sudden Blindness with Obscure Etiology.

Dr. H. B. Young, of Burlington, Iowa, reported the case of a patient under observation eight years. At first the right eye had very poor vision—20/130. There was a considerable deposit on the posterior lens capsule. Vision in the right eye was 20/30 plus,

with a small amount of astigmatism against the rule. The left eye remained unchanged; the right eye steadily grew worse. In July, 1910, vision in the left eye suddenly failed. It was 20/100 plus. Pulse was slow; blood pressure slightly below normal. When stepping on a chair or stepladder the patient had a sense of falling backward. The nervous reflexes showed no special changes. He had no headache. In the left eye the disc was pale and blurred. Since July he has taken increasing doses of iodides, without any effect. The tension of the globe is the same today as it was in July. He did not think that it was a case of atrophy because, if so, there would have been a steady decline.

Discussion.—Dr. Henry Gradle said that he could not see any change in the optic disc, and that the slight blurring seemed to be due to optic reasons—haze in the vitreous, or on the posterior surface of the lens.

Dr. Oscar Dodd was not at all sure as to whether the nerve head should appear as it did. The pupil was not dilated and therefore the fundus could not be examined thoroughly. He had seen these cases with fine dots on the posterior surface of the lens, which have remained nearly stationary for a long period, and then showed a degeneration of the retina, much as this case did, but the change was a gradual one and not a sudden one, as in this case. He agreed with Dr. Gradle that the blurring and appearance of the disc was due to the reasons here given.

Unusual Magnet Cases.

Dr. W. A. Fisher reported three cases. The first patient, nine years ago, had a piece of iron fly into his right eye. Attempts were made to remove the iron by operation, but failed. Three years ago glasses were prescribed successfully for headache. Recently the eye became irritated and presented the picture of beginning iritis. A foreign body could easily be seen in the anterior chamber, the end sticking into the iris. The lens was absent, the capsule only remaining. Tension was normal. The next morning the piece of iron was easily removed with the giant magnet. It was more than one-quarter inch long. Vision is 20/20.

The second patient was struck in the eye by a piece of metal passing through the lower lid into the conjunctiva. A probe could be passed through the opening to the eyeball. An opening was

made above and to the temporal side and with great difficulty a piece of iron, 5 mm. long, 3mm. wide, and $1\frac{1}{2}$ mm. thick, weighing 2 grains, was removed.

The third patient had a piece of metal enter the eye through the cornea, passing through the iris and into the posterior chamber, where it could be seen lying on the retina. The lens was not injured. The foreign body was too large to admit of its being drawn into the anterior chamber without injuring the lens; therefore, it was removed through the sclera, first making a conjunctival opening. Three weeks after the operation vision was 20/30. The case is unusual in that the foreign body was removed through the sclera.

Anatomically Misplaced Puncta.

Dr. Clark W. Hawley reported the case of a man, seen five years ago, who complained of epiphora, which evidently had troubled him all his life. When he attempted to probe the passages and pull down the lower lid, he noticed the punctum pointing upward from the upper surface of the lid edge. There was an absence of the punctum lachrymalis. The other eye presented the same appearance. There was no eversion of the lid margin. Otherwise it was normal in every way. The punctum was about 2 mm. from the edge of the lid and led directly into the canaliculus. Instilling cocaine a few times, he inserted a knife into the punctum for a short distance, then turned it backward toward the eyeball as far as possible, and made a slit just sufficiently long to extend down the inner surface of the lid about two or three millimeters, the direction being at an angle to the margin of the lid, backward toward the inner canthus. The patient recovered completely.

A second patient, aged sixty, presented the same condition, except that the puncta were situated back a little from the edge of the lid, not quite so far as in the first case. The same operation was performed, with the same good result.

The third patient—a middle-aged woman, presented the punctum on the upper surface of the lid on the left side only.

In the fourth case the puncta opened directly upward. The same operation proved to be sufficient to give relief.

The last case was one of absence of a punctum, the canaliculus being present. A punctum was made successfully, the same course being pursued as in the cases of misplaced punctum. This patient, too, recovered.

Discussion.—Dr. Oscar Dodd saw one of these cases which had

been exhibited before the society. He personally had one case of congenital absence of the punctum, but in this case he could not find a canaliculus.

Method of Decolorizing the Conjunctiva in Argyrosis.

Dr. L. E. Schwarz employs a method which consists of injection into the conjunctiva of potassium iodide in saturated, half saturated or thirty per cent solutions, the strength depending on the reaction following each treatment. With the smallest needle of an ordinary hypodermic syringe and a broadsided forceps, a puncture of some portion of the stained area is made and the needle is passed superficially 8 millimeters or more into the substance of the conjunctiva, care being taken to keep parallel to and as near the surface as possible. Three or four minims of the solution are injected very slowly. If the discolored area is extensive and the reaction is slight; the injection may be repeated at a point as far removed as possible from the first. When all irritation has subsided, which usually requires from two to three weeks, the injection may be repeated at other points, until the stained area has been well traversed. The effect of the potassium iodide as far as decolorization is concerned is progressive and slow, but certain, producing an almost normal color in the conjunctiva. He has used this method since 1905, with unvaryingly good results.

Discussion.—Dr. L. M. Grosvenor saw some of Dr. Schwarz' patients and on inquiry learned that they were using a five or ten per cent solution of argyrol or protargol at home for some inflammatory condition. They keep the solution on hand and instill it from time to time, as they deem it necessary. The result is the argyrosis. Patients should be warned not to use such solutions indiscriminately.

In a case of dacryocystitis occurring in an old lady he injected argyrol into the puncta and canaliculi. Some of the solution trickled down through the nose, and soon there followed a little bulging of the lower lid. Five days later she returned with an inflammation. An argyrosis followed. He warned against the too free use of these solutions in lachrymal troubles, because of the tendency of the fluid to extravasate.

Dr. Thomas Faith referred to a report made by a French author some years ago on the use of a solution for the cure of incipient cataract. He tried it in several cases, but the patients complained

of much pain. In some a severe chemosis occurred, which remained for ten or twelve days. He attempted to make the injection subconjunctivally, but pain resulted nevertheless. Then he used some soluble iodine solution, supposed to be non-irritating, but the result was no better than from the use of the iodide of potash, except that there was no pain.

Dr. Willis O. Nance has seen many cases of argyrosis. In one case the stain was caused by the use of nitrate of silver drops prescribed for home use by a foreign physician. There was an area comprising fully four-fifths of the palpebral conjunctiva, of a dark blue or blackish hue. He thought Dr. Schwarz' method practicable, but failed to see how it is possible to inject the solution into the stroma.

Dr. Harry Woodruff stated that there are some rules which should be followed in these cases, and one is never to use any preparation of silver in the eye for more than thirty days. That is about as long as the tissues will stand it without becoming discolored; that is, a ten per cent solution. Another rule is never to use any preparation of silver as an injection into the lachrymal sac, because one never knows when the canaliculus may be punctured at some point and a serious condition is sure to follow.

Dr. Major Worthington inquired whether Dr. Schwarz had used this method in cases of stains about the eyeball. He had an unfortunate experience in injecting a very weak solution of argyrol in a case that had been probed and where he thought he had passed the probe into the nose. Subsequently he found that there was a false passage. A marked stain was produced. Although it is gradually fading now, after two years, there is still some discoloration.

Dr. W. A. Fisher said that if he had to choose between injecting argyrol and protargol into the lachrymal sac and removing the sac, he would favor removing the sac, despite the fact that the injection method is apparently a very simple one.

Dr. Robert Von der Heydt did not think it so simple to successfully remove the sac, and prefers to inject it for a period, and as argyrosis is really a very rare complication and due to forced hypodermic-like methods, why deprive patients of a treatment which is effective? After irrigating the sac with boric acid solution, instill a drop of argyrol or protargol solution. In a second it is

regurgitated at the upper punctum. The tissues are thereby reached by the silver solution in a manner in no other way possible.

Dr. L. E. Schwarz said that there is more or less pain and the more perfectly the procedure is carried out, the greater the pain. That is why one should not attempt to do too much. It is difficult to keep close to the surface in the case of a mucous membrane, as thin as the conjunctiva, yet the results justify the procedure. Only three minims are injected, as a rule, even allowing for the small size of the drop coming from a small needle. The injected fluid seems to penetrate the tissues. That is why no pressure is made at the time the needle is withdrawn. There frequently is some reaction in the way of swelling, but never amounting to very much.

As to Dr. Nance's remarks, the reason he laid such emphasis on the fact that he did not want it understood to be a subconjunctival injection is because of the usual definition placed on such injection. It means the needle going down into the deeper tissues, whereas he keeps the needle as close to the surface as possible. He has not had a case of argyrosis of the conjunctiva of the bulb, and thought it would be rather difficult to make an injection in such a case because of its extreme thinness. Results can be obtained with greater readiness and ease in the case of integumental staining, because the needle can be inserted easily into the proper place.

Hypertrophy of Tarsus.

Dr. C. J. Swan reported a case with a negative history. The only possible manifestations of inflammation was an occasional edema about the lid. The change in the tarsus was first noticed about two years ago. Since then it has gradually increased in size, most of the hypertrophy being on the skin surface, so that it is impossible to turn the lid. There is no irritation or reaction of any kind.

Discussion.—Dr. O. Tydings had a case somewhere similar to this. There was a decided thickening, more so than in Dr. Swan's case, although not so much broadened out. It had been treated for some time as a trachoma. It had existed for about three years. There was no involvement of the other eye. He used tuberculin and got a response. The patient improved under tuberculin injections, but finally disappeared from observation, so that no report can be made on the further progress of the case.

Pulsating Exophthalmos.

Dr. Francis Lane reported a case where the patient was struck on the head with a brick, about three months ago, the result being a fractured nose. After about twelve days there was marked ectropion of the lower lids. The lids were so chemotic that nothing except the conjunctiva was exposed in the lower lid. The upper lids were edematous and chemotic. Both corneae were exposed. Cultures and smears were negative, except for diplococci, Gram-negative, and the xerosis bacillus. The lids were so very edematous that it was necessary to do a canthotomy. The conjunctiva was scarified vigorously. Vision at the time of entrance was about 8/200 in both eyes, but improved gradually. After about ten days it was 20/50 in the left eye, and 20/100 plus in the right eye. Potassium iodide was given. After another ten days vision in the left eye was about 20/30. Right eye 20/50. By oblique illumination the iris in the right eye was seen to be muddy. The patient developed an iritis. In the right eye there was enormous dilatation of the retinal veins. There were many small hemorrhages around the discs. The patient had the three cardinal symptoms of exophthalmos, the pulsation, the bruit and the exophthalmos. The patient described the bruit as a blowing murmuring sound in the left ear. The condition was bilateral, which could be accounted for anatomically, he thought, because of the connection between the right and left sides of the cavernous sinus. Nasal examination and the skiagraph were negative. The bruit was readily heard objectively. Today vision in the right eye is 20/20, and the eye can be compressed without producing pain. Pulsation was continuous over the left temporal region, rather accentuated during systole. The only treatment given aside from the local treatment was potassium iodide.

WILLIS O. NANCE, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting of the Society was held November 21, 1910, with the President, Dr. W. A. Fisher, in the chair.

Congenital Absence of Optic Disc.

Dr. Clark W. Hawley presented a girl, aged 12, who complained of failing vision, first noted five years ago. Retinoscopy showed mixed astigmatism. Correction did not improve vision, except to make it brighter. Fundus showed the blood vessels as in the normal, but entire absence of the disc. There was no sign of

an exudate. The retina and choroid were clear and distinct. None of the blood vessels are obscured. In the left eye, especially, there is a peculiar reflection along the blood vessels which looks like an exudate, but it changes its shape and position. The circle of light can be followed through the vitreous and there is a reflection back from the vitreous, but by careful watching one can see the blood vessels in nearly all directions. It is evident, he said, that there is a congenital malformation in the posterior portion of the eye. The visual fields were not reduced.

Discussion.—Dr. Thomas A. Woodruff called attention to an article by C. H. Beard in the *OPHTHALMIC RECORD* for June, 1901, in which is reported a case of absence of the optic disc simulating choked disc.

Dr. Brown Pusey thought that he could see the outlines of the nerve-head in the right eye.

Dr. E. V. L. Brown was unable to find any evidence of a disc, but he thought that the vitreous was changed quite a little and suggested that there might be present a remnant of the ambryologic vitreo-glial structure, which might account for the condition. The type of disc corresponds to type one of Elsnich's classification. There might be, he said, some change in the transparency of the normal glia both in the vitreous and retina.

Lymphangiectasis Multiplex.

Dr. J. F. Burkholder reported the case of a woman, aged 30, who complained of headache, failing vision and a feeling of roughness in the eyes of three or four weeks' duration. Vision was: O. D. 20/50; O. S. 20/60. Glasses relieved the headache, but were not comfortable. The bulbar conjunctivæ of both eyes showed many straight chains of multiple, moniliform injections or dilatations radiating outward from the cornea to the fornix, and measuring about .75 mm. in diameter. Pressure emptied these dilatations of a colorless fluid. There was no evidence of conjunctival injection.

There was also marked corneal disturbance. A curved band of infiltration, 2 mm. wide, extended horizontally across the left cornea, the convexity facing downward, the upper border passing across the lower pupillary area. This band was nebular in character. The cornea was not rough. It extended to the sclera on either side, where there was slight vascularity. The right cornea was clear, except for a small phlyctenular elevation at the nasal corneo-scleral margin in the region of the palpebral fissure. This

was circumscribed by a narrow area of vascularity with its greatest width on the scleral side. This became vascular, then pustular and finally broke down, leaving a marginal ulcer, which was exceedingly persistent.

Modification of Schiotz Tonometer.

Dr. H. Gradle exhibited an instrument that differed from that of Schiotz in mechanical detail only. The foot-place is somewhat smaller; the style is only $2\frac{1}{2}$ mm. long, and the exchange of weights is more simple. The least imperfection, even an erosion of the cornea, is registered by the instrument.

Lymphocytosis in Perforating Eye Injuries.

Dr. H. S. Gradle has examined the blood of patients who sustained a perforating wound of the eye and where other causes of leucocytosis could be excluded. He divided the cases into three classes. In the first class were 18 cases, in which the injured eye was removed because of the fear of sympathetic ophthalmia. In each case there was an increase in the number of mononuclears of from 20 to 80 per cent. In the second class were 21 cases, where the wound healed spontaneously, or where the eye had to be enucleated on account of early panophthalmitis. In all these cases the blood was normal. In the third class were 13 cases of iridocyclitis of various forms which could in no case lead to sympathetic ophthalmia. The blood was normal in every case. He said that in cases of perforating injuries which would lead to a sympathetic ophthalmia and where the mononuclears are decidedly increased an acute aggravation of the iridocyclitis is at times shown thirty-six to forty-eight hours before the clinical manifestations by a further increase in mononuclears of at times 20 per cent. Within two to four days after enucleation of the injured eye the blood count falls to normal and remains there.

Discussion.—Dr. H. Gradle has followed this in his own practice recently. The first two instances were very striking. The first case was a perforating injury resulting in a rent through the cornea, exposing the anterior chamber and two or three smaller rents which did not perforate. The larger wound remained open for five or six days. Although the lens was not injured, the clinical aspect was threatening, due no doubt to the infiltration caused by all injuries. The wounds healed slowly. The blood count was normal and the patient recovered without any permanent injury except a blur from the central scar running through the middle of the pupil.

In the second case a wire passed through the cornea into the

lens. The eye did well except for some flushing when it was exposed to the light. Toward the end of the sixth week a few spots of keratitis punctata appeared. The eye was enucleated. During the entire six weeks the blood was as reported by Dr. H. S. Gradle. In three other cases the blood count was normal with slight daily fluctuations.

Dr. E. V. L. Brown referred to the opinion given by McElroy, of the Moorfield Clinic, that the infiltration is a plasma cell infiltration rather than a mononuclear leucocytosis. The observation has been uniform in eighteen or twenty cases. In Fuch's clinic these cases have not been checked up on account of the improper stain used. However, the plasma cell infiltration was a typical one. If, he said, the lymphocytosis can be shown to be a constant differential point between an eye that may cause sympathetic inflammation and one which will not, it is exceedingly valuable.

Dr. Gradle, in closing, said that Dr. Ormond, of Guy's Hospital, London, working independently, found the same thing, but he maintains that the increase was due to the large lymphocytes and not the small ones. However, that is a difficult matter to determine, and is really one of personal equation. Dr. Gradle has used the differential stain for plasma cells, but at no time has he found anything resembling them, either Ehrlich's variety or Türk's Reitzungs or irritation forms.

WILLIS O. NANCE, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF OCTOBER 15, 1910.

DR. E. F. CONANT, PRESIDING.

Neuro-Retinitis of Obscure Origin.

Dr. D. H. Coover presented a well nourished boy of 16 years, weight 120 pounds, who had noticed haziness of vision in the left eye for three weeks. R. V.=5/5. L. V.=5/60. There was a central scotoma in the left field of vision, and the red and green fields were contracted. He complained neither of headache nor any disturbance except that of the sight. There had been injuries to the head and nose in the past. No evidences of accessory sinus disease were obtainable. Evidence of syphilis was negative. The urine showed absence of albumen, but double the normal amount of urates. A marked neuro-retinitis, with retinal hemorrhages and exudate, was shown ophthalmoscopically in the left eye, while the right retina presented a watered silk appearance.

A later report from Dr. Coover indicated clearing of vision under the administration of salicylic acid, and that the blood pressure was found to be 108 mm.

Discussion.—Dr. Jackson noted that the right disk was red and the fundus muddy, and considered that the prognosis was poor.

Dr. Libby suggested a study of the blood, with special reference to pressure.

Intro-Ocular Hemorrhage.

Dr. Coover also showed a man of 66 years, who had been found unconscious in the bathroom. The attending physician diagnosed cerebral hemorrhage, although there was no paralysis. On regaining consciousness three weeks later the mental condition was good, but the vitreous was full of blood and debris, and R. V.=1/160, L. V.=1/200. Dr. Coover thought the hemorrhage was possibly subhyaloid, and that it had occurred at the time of the loss of consciousness. Vision was variable, but not improving, and the patient was now failing mentally.

Obstruction of Central Artery of Retina.

Dr. Libby presented a man of twenty-one, a restaurant employe, who had consulted him on September 2, 1910, because his right eye had watered and ached for the past five months, while working under an arc light. In May an optician had given glasses which helped the left eye, but not the right. The patient stated that two and a half years before, following free drinking of beer and moderate use of spirits, he noticed loss of sight in the right eye; and believed there had been no change of vision since. Examination showed quantitative vision in the right eye, 4/6 partly in the left. The right disk was very pale, its margins obscured; the macula showed as a cherry red spot, and was surrounded by an area of edema the size of the disk, or slightly larger; and the vitreous showed clouding, with some small floating opacities. The left media were clear and the fundus normal, although the temporal margin of the disk was pale.

On October fifteenth the ophthalmoscopic picture had changed materially. The perimacular edema had given place to chorio-retinal atrophy, with fine dots of pigmentation; the cherry red spot had disappeared; the vitreous opacities were more numerous and larger, and the disk atrophic. The physical appearance of the patient was that of a poorly nourished individual who needed sunshine, fresh air, good food and sleep, in great abundance. Disre-

garding advice to consult a competent internist, he put himself under the care of the restaurant physician who "found both sugar and albumin in the urine, which cleared up under buchu, etc., diagnosed syphilis from the blood corpuscles, and gave 'mixed treatment' with good results."

Discussion.—Dr. Jackson thought that possibly vision had been lost from one cause two and a half years before, while obstruction of the central artery had occurred recently.

Degeneration of the Iris in Locomotor Ataxia.

Dr. Jackson presented a patient, a man aged 61, who had suffered for four years with locomotor ataxia. The disturbance of locomotion had come on rapidly; but later he had recovered ability to walk with a cane. About four months ago sight failed rapidly in right, 4/15; left, counting fingers at two feet. This was due to optic atrophy. There was miosis, the pupils being 1.5 mm. in diameter and quite devoid of light reflex. Under cocaine and euphthalmin they dilated to 4.5 mm. The iris presented a uniform pale grayish blue, like a wash of color; and was deficient in crypts and other evidences of iris structure, which had been described as an atrophy of the iris. This appearance seemed due partly to the tension on the iris; for it largely altered toward the normal iris appearance when the pupil was dilated. It seemed partly due, however, to a change in the anterior endothelial layer of the iris, which more completely covered the stroma, and presented a rather fluffy appearance when magnified.

Pemphigus.

Dr. Bane reported that the case of monocular pemphigus which he had presented before this society several times, still remained cured, two years after the successful use of X-rays. A year ago corneal ulcers, which were relieved by argyrol, developed in the other eye; and subsequently pemphigus of this eye appeared on the nasal half of the palpebral conjunctiva, cicatricial changes producing entropion.

Irido-Cyclitis.

Dr. C. E. Walker presented a man who had recently suffered from gumma of the iris, which developed one year after the primary affection. The gumma was located on the anterior surface of the iris, below. It had absorbed in three weeks, under mercurial inunctions. There were now posterior synechia and a few deposits on Descemet's membrane, below, but the eye was quiet.

Phthisis Bulbi with Hyphemia.

Dr. W. A. Sedwick showed a man of sixty-one whom he had treated four months before on account of a large scleral wound,, loss of vitreous and profuse ocular bleeding. The nasal bridge and upper orbital margin suffered a compound comminuted fracture. This was followed by a huge abscess of the face, which healed under surgical treatment, and the fractured bones united. The scleral wound healed, but cataract developed, vision was lost and a soft, shrunken, unsightly globe remained. Five days before presenting the case before the society, a hemorrhage 2 mm. deep had occurred in the anterior chamber; and which the patient attributed to a fly getting into that eye. The blood had not absorbed to any appreciable extent. Dr. Sedwick raised the question of removal of this eye, as the patient was unwilling to have it done without further counsel.

Discussion.—Drs. Coover and Libby advised removal of the eye, which seemed to be the consensus of opinion.

Penetrating Wound of Cornea and Lens.

Dr. D. A. Strickler presented a child whose eye had been injured by a splinter of wood passing through the center of the cornea and entering the lens. Clouding of the lens occurred; but partial clearing had resulted in 20/50 vision. Dr. Strickler asked for an expression of opinion as to the advisability of operating in the hope of improving vision.

Discussion.—Dr. Jackson had seen two tracks of opacity clear; one from a knife needle, the other from a steel particle. He had also seen large opacities clear, only to reappear later on.

Dr. Sedwick recalled a case in which general clouding due to traumatism had cleared except at the center of the lens.

Drs. Ringle and Spencer would not operate on this eye.

Result of Extensive Wound of Ciliary Region.

Dr. Strickler re-exhibited the little boy shown at the February meeting on account of a knife blade injury received January 7, 1910. The eye was still quiet, the tension normal and vision equalled fingers.

Ectropion from Burn.

Dr. Conant showed a young man with recent severe burn of both lower lids from hot solder, with resulting and steadily increasing ectropion from the contracting scar tissue. An operation would be performed when the eversion became fixed.

GEORGE F. LIBBY, Secretary.

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

MEETING TUESDAY, NOVEMBER 1, 1910.

WILLIAM CAMPBELL POSEY, M. D., CHAIRMAN.

In the clinical conference a number of interesting cases were shown from the wards of the hospital. Among them.

Dr. Samuel D. Risley presented for study, a short very obese woman aged 53, who had been admitted to the wards two days before, because of certain general symptoms and the state of the intra-ocular vessels he had regarded her as in great peril of death on the street from any slight exertion. Vision of the right eye was 6/21, corrected to 6/7.5; of the left 1/60 and not improved. There was no external injection nor cloudiness of the media, but the ophthalmoscope showed in each eye the characteristic appearance of perivasculitis, with high circulatory tension. There was also a well advanced secondary or consecutive atrophy of the left optic nerve. The radial pulse was very tense; and on exertion she became dyspnoeic and complained of a more or less constant sense of fullness in her head. The ocular tension was not increased.

For many years the patient has suffered very severe headaches which came on at 3 o'clock in the morning but disappeared on rising, yet she has been relatively free the past year. She has four healthy grown children and has had one miscarriage which she attributed to fright. Four years ago she had abdominal dropsy with anasarca of the lower extremities, said to have been due to kidney trouble, but of this she was relieved by treatment. About one year ago she had periodical or intermittent attacks of obscurity of vision in the left eye with photopsia, which she describes as "blue flashes." At that time her family doctor told her she had high blood pressure. The right eye began to fail about six months ago and since then she has had recurring attacks of dizziness, a more or less constant sense of fullness in the head and xanthopsia. Although she is still very stout she says she has lost flesh rapidly during the past year. She passed 30 ounces of urine during the first 24 hours in the hospital. It was found strongly acid, the specific gravity was 1.028, and it contained only traces of albumen and sugar. After 24 hours of rest in bed an examination of the heart was made but because of her obesity it was found impossible to definitely outline the heart, yet it was apparently larger than normal. All the sounds were harsh and accentuated; the first was short, the second prolonged with transmission into the axilla. No

murmur could be distinguished. The blood pressure in systole was 220 mg. Two leeches were applied to each mastoid; and a half-ounce of Epsom salts administered every morning. She received 1/100 gr. Nitro-glycerine and a medium dose twice daily of triple bromides. After 24 hours of this treatment her symptoms were all greatly relieved. In three days the pulse rate fell from 100 and sometimes over, to 80, and the blood pressure to 200 mg.

Dr. Posey exhibited a young girl who had previously been under his care for pronounced neuro-retinitis, for which no casual factor could be found save a moderate amount of chlorosis. The condition had improved greatly under iron and when he had last seen her six months ago, her vision was almost normal and she appeared to be in the best of health. She has lately returned, however, saying that she lost 20 pounds in weight during the summer, and that she has suffered much from headache, vertigo, nausea and vomiting, while the sight in both eyes has failed perceptibly. The ophthalmoscope shows a rather pronounced retinitis in the hitherto unaffected eye and a regressive neuritis in the fellow; vision in the good eye equalled 6/12, in the other only 2/40. It is Posey's intention to subject the patient at once to a careful clinical examination. Yet the question arises whether it may not be well to advise a decompression operation (immediately) upon account of visual reasons even if no other signs of intracranial involvement are present.

Dr. Zeigler suggested that the edema might be due to obstruction in the respiratory tract, and he cited a case in which marked edema disappeared after enlarged and diseased tonsils were removed.

Dr. Risley said he would be inclined to believe that the nasopharyngeal conditions could affect the ocular structures only in so far as such disorders would tend to disturb the sleep and digestion and thereby favor a general toxic state of which optic neuritis could well be a part. Many years ago he had observed a rather large group of young patients in whom distinct choroiditis of a low grade was caused by defective metabolic activity, in whom the thyroids and other large glands presumably were affected. Dr. Zeigler said he did not dispute Risley's view, yet he would regard defective oxydation as a great factor in originating metabolic disturbances, and cited cases of Mikulicz's disease as extreme examples of obstruction with disorders of metabolism.

Dr. Zentmayer exhibited a man with a recurrent sarcoma of

tehr orbit. The patient was 29 years of age and had come under observation first in March, 1905. There was then a detached retina with areas of choroiditis. A careful study of the case including trans-illumination led to a diagnosis of simple detachment. In the treatment scleral puncture was included, and he left the hospital one month later with a slight improvement in the field of vision. In August, 1907, because of pain and inflammation the eye was enucleated by another; no information could be obtained except the patient's statement that no growth was found within the eye. In July of 1909 a growth made its appearance in the orbit, and was removed in December of 1909 by Dr. Stewart of Clearfield for microscopic examination. Dr. Herbert Fox studied it and pronounced it to be a "melanotic spindle celled sarcoma." In January, 1910, Dr. Zentmayer exenterated the soft tissues of the orbit including the periosteum over the inner wall of the orbit, where the site of the growth had been. In March a recurrence was noted by Dr. Stewart, yet the patient did not return for operation until October when an apparently capsulated growth, the size of a small walnut, was found behind the upper lid extending back into the orbit. At the operation the growth was found to invade the ethmoidal and frontal sinuses. A thorough exenteration of the orbit and curettment of the sinuses was performed. Since then Roentgen-ray treatment has been employed. The points of interest in this case are: The age of the patient, (he was about 23 years of age when the subjective symptoms appeared), which is early for sarcoma if the detached retina can be taken to be a symptom of intraocular sarcoma; the presence of a deep bluish-black line in the skin over the infraorbital margin; and the question as to the probable effect of the sclerotomy in hastening the orbital involvement.

Dr. Chance exhibited a woman of 72, who had been under his observation for only a short time past. One eye had a well advanced cataract, while the other presented a large milky white opaque lenticular body, the lower half of which was marked by a reddish convexity which he believed to be either a dislocated nucleus, or a localized discoloration due to uveal disease. The tension was not increased. There was good light perception. Chance was more inclined to the idea that it was a case of Morgagnian cataract with the nucleus precipitated to the bottom of the capsule, for the whitish portion contains droplets and cholestenin crystals. The anterior chamber is shallow, however, the iris is steady, and so far the colored body does not seem to be displaced when the patient moves

her eyes. Chance intends to operate on this eye within the week, and he will proceed as for a hypermature cataract.

Dr. Robert L. Randolph, of Baltimore, said that while he was uncertain as to the nature of the cataract, yet to him it looked like a lens which had been colored under the influence of changes in the deeper structures, for more than once he had seen such pigmentation or rather coloration confined to one part of a lens. He would regard the case as an atypic *cataracta nigra*.

Dr. Zentmayer said that Dr. Chance's case resembled very closely one upon which he had recently operated in which there was a reddish-brown disc shaped opacity in the lower portion of the lens. The upper part of the lens had a grayish hue. At the operation it was found to be a Morgagnian cataract in which the nucleus had become luxated. He believed Dr. Chance's case to be of this nature; the only point against it being the narrow anterior chamber present. In his own case the anterior chamber was deep.

BURTON CHANCE, M. D., Secretary.

SECTION ON OPHTHALMOLOGY.
COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OCTOBER 20, 1910.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

A Case of Syphilitic Iritis (Iritis Papulosa) Treated With a Single Injection of Ehrlich's "606."

Drs. G. E. de Schweinitz and E. A. Shumway recorded the case history of a patient from Dr. de Schweinitz's wards in the Philadelphia General Hospital who had been admitted on September 17 for the treatment of specific iritis, the initial infection having occurred in August of the same year. The patient had had no constitutional treatment prior to the development of the iritis, and after its appearance only six inunctions of mercury and less than sixty grains of iodide of potassium. The lesions consisted of a marked thickening of the upper and outer quadrant of the iris beneath which a yellowish papular mass developed, the point of which protruded on the margin of the iris. Down and in there had been an attachment of the iris which had broken loose. Upon the posterior surface of the cornea were numerous precipitates. A single injection of preparation "606" was given, with the kind assistance of Dr. Funk, on October 10. A Wassermann test made five days pre-

viously by Dr. Laird was most actively positive. Marked pain and discomfort followed for about fourteen hours, after which there was no disquietude of any kind. Although there had been improvement in the eye prior to the use of the injection, the rapidity with which the lesions disappeared after its use was most striking. Improvement was noted in forty-eight hours, and by the end of ten days the eye was not far from normal. A Wassermann reaction made nine days after the injection was medium positive.

Dr. Holloway stated that he had seen the patient under discussion prior to the injection, and had again seen him yesterday, at which time the iris was practically flat and the eye quiet, and he regarded the prompt and decided improvement as most unusual. The tendency of the profession to look for ill effects following the use of this preparation was doubtless influenced by the unfortunate results that had followed the use of atoxyl in some cases. Owing to this, clinicians have insisted upon an ophthalmoscopical examination prior to its employment. He called attention to the recent series of cases reported by Spiethoff, where, in some cases transitory blindness and scotomata had followed the injections. Acting upon the suggestion of Murphy as recently expressed in the Journal of the American Medical Association, he had employed sodium cacodylate in a case of uveitis. This patient had a transitory glycosuria, but no other symptoms of a diabetes; had given a mild Wassermann reaction, and despite the most vigorous treatment the condition had gradually progressed. The patient had now been on sodium cacodylate for a period of two weeks without the slightest evidence of any improvement. In this case the drug was given by the mouth.

Dr. Hansell thought that the profession, if one might judge from the reports in the medical journals, was most enthusiastic concerning the value of "606" in the treatment of syphilis. Rapid cures of inflammation of the various parts of the eye had been described. His experience was limited to a single case of iridocyclitis. Recovery was not particularly prompt or startling, at least not more so than he had often seen following the administration of older and more familiar remedies. The patient was now in the eye ward of the Jefferson Hospital. Wassermann's reaction was positive. He received an injection in the back given by Dr. Olsho, and no other general medication. After one week the symptoms of iritis had improved and the ciliary injection was not as marked. The synechiæ were unchanged. If "606" will destroy the spirochetæ,

and mercury and iodides cause the absorption of the exudates, it would seem that a combination would be more effective than either alone.

Double Optic Atrophy.

Dr. J. B. Turner exhibited a case of *Double Optic Atrophy* caused by an attack of acute fulminating retrobulbar neuritis, in June, 1906. The history of this case was reported by Dr. C. A. Veasey at the October meeting of 1906 and published in the December number of the *OPHTHALMIC RECORD* for the same year. The vision of the right eye is now 1/200, while with a 1.75 S. before the left eye the vision equals 6/12. At the present time the patient cannot accurately discern colors, but there is no central scotoma. Dr. Turner stated that the cause of the neuritis in this patient was still in doubt, but thought some autointoxication product might be the etiological factor in cases of this type.

Dr. Sidney Olsho (by invitation) stated the history of a child, aged four years, who had been brought to the Jefferson Hospital, in the service of Dr. Hansell, in February, 1910. At this time there existed in each upper lid a rounded, rather yielding tumor, about the size of a large pea, situated just above the posterior border of the tarsal cartilages at the junction of the inner and middle thirds. The overlying skin was movable and not discolored. The tumors were first noted two and one-half or three months before the child was brought to the clinic; their growth was slow and painless. During their removal by Dr. Hansell the cysts were ruptured, with the evacuation of a thick white sebaceous matter. The examination of this material showed nothing suggestive of the dermoid character of the cysts.

The sections of the cyst wall presented an innermost layer composed of tissue resembling skin; an intermediate portion consisting of lobule-like structures, and an outermost portion consisting of a connective-tissue capsule. The innermost layer was composed of squamous epithelium, six to fifteen cells in depth. The outermost of these squamous cells adjoined the connective tissue which separated this layer from the lobule-like structures. The lobules were of an irregularly oval shape, about the size of a liver lobule, but varied considerably in size. One of the typical lobules showed three zones of cells. The outer one was composed of very tall epithelial cells almost columnar in type, with oval nuclei. The next zone was more loosely arranged, the cells more cuboidal, some having round and others oval nuclei. Many of these cells contained two

nuclei. The centre of the lobule was occupied by very large, poorly staining granular cells having a more or less spindle-shaped nucleus generally placed to one side. In the sections stained with the Mallory stain these large central cells reacted very strongly to the red dye. A very delicate reticulum of fibrous connective tissue seemed to surround each of these large cells.

Most of the lobules were surrounded by a thin interlobular connective tissue which contained some long spindle cells having oval nuclei. This interlobular tissue was deficient at places, and here more or less blending of the lobules occurred. In certain areas the typical lobular arrangement was not present. Here the large central cells seemed to be continuous with the innermost squamous cells. In a number of sections pigment was seen, which was both intra- and extra-cellular. This pigment was present in quantities about some of the large cells with peripherally placed nuclei, and was constantly extracellular to these. The capsule of the cyst was composed of fibrous connective tissue and showed quite a degree of hemorrhage.

Dr. Hansell thought that Dr. Olsho's paper was a clear exposition, in a comparatively brief space, of the etiology, microscopic anatomy, and clinical signs of dermoid tumors of the lids. But he had not made clear to him the distinction between dermoid tumors and tumors "allied to dermoids," and he would thank him for an explanation.

Dr. Olsho said he had hesitated to say positively that the cysts were dermoids. Although the lining cells were of the squamous epithelial type, resembling very closely those found in the epidermis, the structures immediately below were not typical of those generally found in the skin. The lobule-like structures and their large, somewhat granular central cells, had not been identified with certainty by any of the pathologists who were kind enough to examine the sections with him. Nearly all the cells were very much of the embryonic type. Senn differentiates this class of tumors into those which developed from a matrix derived from the epiblast before differentiation has advanced to the formation of the appendages of the skin and those derived from such a matrix after differentiation has occurred. In Dr. Olsho's opinion the cysts in question would come under the former variety. He had been reticent about making a positive diagnosis until more of the members of this Section had an opportunity to express their opinions of the unusual structure of these cysts.

Spontaneous Rupture of a Glaucomatous Eyeball.

Burton Chance reported a case of spontaneous rupture of a glaucomatous eyeball. The patient, aged eighty-four years, was the mother of a colleague. Symptoms presumed to have been those of glaucoma had existed for two years, attacking the left eye and then the right. Each eye presented the signs of inflammatory glaucoma. The left cornea had become ulcerated and was densely leukomatous. Light perception was not present in either eye. Operative measures were withheld for various reasons. After a year, in March, 1903, an erosion of the right cornea occurred, and later an abscess developed which pointed in the anterior chamber. Enucleation was advised, but was objected to. Paracentesis, with extraction of the slough, was then performed, and healing of the cornea promptly followed. A month later, on bending over while preparing for bed, the lady was seized with violent pain in her head and suffered great agitation. In a few moments the pain was relieved by the bursting of the right globe, accompanied by profuse hemorrhage. The contents of the globe and a large blood clot extruded through a rent in the center of the cornea and were found between the lids. A month later entreaty was made to take out the shrinking mass of ocular tissue. Enucleation was performed under general anesthesia, the socket healed readily and the patient was free from pain. She died about eighteen months later, having retained her intellectual and vital powers to a remarkable degree up to within a few days before her death. Chance's belief in this case was that the bursting of an ocular vessel caused the rupture of the globe.

Experimental Iris Tuberculosis.

Drs. G. E. de Schweinitz and (by invitation) Gordon J. Saxon exhibited the sections of a rabbit's eye into the anterior chamber of which small portions of tissue taken from the lower lid of a boy, aged ten years, who had been demonstrated before the Section in March, 1910, as a case of tuberculosis of the conjunctiva, had been implanted. On the twenty-ninth day after implantation of this granulation tissue tubercles began to appear in the iris tissue, and at this time the animal was exhibited to the Section, when eight or ten of such tubercles were evident. Microscopic examination revealed two distinctly tuberculous areas, namely, at the corneo-scleral junction externally, and at the pupillary margin of the iris, in addition to which there were diffuse areas of lymphoid cell infiltration. At the pupillary margin of the iris a mass was found

which had undergone caseous degeneration and which consisted of caseous granular material containing a few lymphoid cells, some cellular remains of the original tissue, and numerous tubercle bacilli. The area at the corneoscleral junction contained small masses of caseation, and the original tissues were densely infiltrated with small lymphoid and endothelial cells. In this area numerous bacilli were present.

Dr. Hansell stated that tuberculous disease of the palpebral conjunctiva was not easy of diagnosis. Bacteriological examination was usually negative and inoculation furnished the strongest evidence. In this connection he related a recent experience. A young man applied to him for relief from a condition of the lid denominated by him as ptosis. After two or three hours work the lid drooped over the ball and could not be raised by the power of the levator. Having a dangerously small knowledge of ophthalmology, he contended that the only cure was a plastic operation. Upon everting the lid Dr. Hansell noticed eight to ten small round ulcers surrounded by crescentic whitish rings in the inflamed and edematous palpebral conjunctiva, the like of which he had never seen. Granular, follicular, Parinaud's, and vernal conjunctivitis were dismissed from consideration, and the only other possibility was tuberculous ulceration. Dr. Rosenberg, of the Jefferson Medical College laboratories, examined the secretion and reported negatively. The patient then admitted that he had consulted another ophthalmic surgeon, who promised to cure by operation and proceeded to puncture the conjunctiva with the electric needle!

Cyst of the Corneoscleral Junction Communicating With the Vitreous.

Dr. G. E. de Schweinitz and Dr. G. S. Crampton reported the case history of an Italian laborer, aged nineteen years, as follows: At five years of age a small white granule was first noticed on the conjunctiva just above the corneal limbus, but it had been impossible to ascertain whether this was congenital or not. History of injury was not elicited. This growth remained unchanged until about a year and a half before the patient came under observation, when it grew larger, and four months before its removal increased rather rapidly in size. It consisted of a small, sessile, cystic, irregularly pigmented growth, 4 by 7 mm. in size, protruding 2.5 mm. from the upper portion of the right eyeball, near the limbus, and slightly overhanging the cornea. Ophthalmoscopic examination was negative. The late Dr. Harlan removed the growth and it was found

that it contained a bead of vitreous which protruded from a circular hole 4 mm. in diameter, looking exactly as if the sclera had been cleanly punched behind the limbus. Two years later there was no return and no discomfort. A microscopic examination of the excised tissues proved that it consisted of practically normal conjunctiva, with a small amount of uveal pigment, the conjunctiva having been a covering to the protruding bead of vitreous.

Stereoscopic Photography With a Single Camera. Pupillary Reflex.

Dr. Walter G. Elmer, in presenting a number of very beautiful stereoscopic photographs taken with a single camera, stated that several interesting questions had arisen in his mind in reference to the optics and physiology of the subject.

Dr. Elmer believed that if we were to look at a far distant point in one of the pictures and then at an object close at hand, that the pupil would contract in response to this apparent change of distance, for there must occur a convergence of the visual axes in order to merge the two images, and if this occurred there would be in turn a contraction of the iris.

He stated that the method for taking these pictures was quite simple. After carefully centering the object, the first exposure was made: the camera was then moved three inches to one side, two and one-half inches if the object was very near, the camera again carefully centered on the object, and the second picture taken. He thought this a much better procedure than the old method with the axes parallel, as it corresponded to the manner in which the visual axes of the eyes converged.

Dr. Holloway felt that the Section was indebted to Dr. Elmer for presenting his interesting observations, and heartily congratulated him on the beauty of his photographs. Dr. Holloway stated that Dr. Elmer had spoken to him about a week or so ago in reference to the possibility of a pupillary contraction occurring under the conditions just cited. On this occasion Dr. Holloway had stated that while he had never studied the pupils under these conditions, and had never seen any reference to it in the literature, he could conceive of such a reaction occurring under a strong psychic influence, but he did not believe that such would be the case. Dr. Holloway had secured one of the ordinary stereoscopic pictures and had attempted to observe the pupils of but three persons. He stated that under the conditions the ocular phenomena were by no means easily studied, but that in one instance he thought that

there had been a slight contraction of the pupil, better expressed as a hippus, or possibly an adaptation of the pupil. In the other two observations no such changes could be definitely noted. He also observed that when attempts were made to change from the distant to the near objects, if one eye moved slightly outward its fellow turned slightly inward, seeming to show a condition of parallelism rather than convergence of the visual axes. As the result of this he still doubted the development of a pupillary contraction, but he thought it would be interesting to pursue a course of study along these lines, under proper conditions.

Dr. Krauss asked how the camera was arranged on a tripod in such a way that the second view could be obtained three inches removed from the first position.

Dr. Elmer, in closing, stated that from his studies he felt that a contraction of the iris must occur, although it was probably slight and very rapid and difficult to detect. To illustrate his contention he called attention to a photograph well adapted for the test and demonstrated that when the eyes were directed toward the more distant of two objects in the picture, the nearer one appeared as two. In nature these two objects had been three feet and one and a half feet, respectively, from the camera. He felt that this was further shown by using as a fixed point an object that occupied the same position in the two pictures, and measuring from this to the same objects as they appeared in the two photographs. In this particular case he had found a difference of $\frac{5}{16}$ of an inch, which he thought had to be made up by the eyes, inasmuch as the photographs and the prisms in the stereoscope were fixed.

In reply to Dr. Krauss he stated that he had clamped to his tripod a cigar box lid that he had ruled with lines two and a half inches apart.

Marginal Degeneration of the Cornea.

Dr. Zentmayer presented a case of marginal degeneration of the cornea. The patient was a woman, aged forty-eight years, in good health, with florid complexion and no evidences of presenility, and complained of symptoms of conjunctival irritation. There was no history of previous inflammation of the eyes. In each eye there was a well-marked groove encircling the margin of the cornea except for an arc of about 15 degrees down and in. It was peripheral to the arcus, which was not uniformly dense, and was, in places, encroached upon by the furrow. At the upper limbus the conjunctiva was drawn over the margin of the cornea and was very

slightly vascular. At several places along the margin a small point of conjunctiva was drawn over on to the cornea, and at several sites there were pin-point yellowish dots, probably small areas of hyaline degeneration. The surface of the furrow was everywhere reflecting, and there was no staining by fluoresceine. There were no degenerative changes in the fundus. H. = 5. D.

The groove was not quite so pronounced in the left eye.

Dr. Zentmayer referred to Seefelder's statement that in all the cases studied anatomically the important changes have been a local degeneration of the corneal tissue, with an effort to compensate for the loss of corneal substance by the formation of fibrillar tissue rich in nuclei and bloodvessels. As this is only partially successful, there results in the diseased area a thinning of the cornea, which manifests itself clinically at first in the formation of a furrow which may later result in an ectasia. Fat globules are found in the corneal lamellæ in the vicinity of the furrow. The process is closely allied and associated with arcus senilis.

T. B. HOLLOWAY, M. D.

Clerk.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the Medical Society's rooms, Chandos street, W., on Thursday, October 20th, 1910. Dr. G. A. Berry, president, in the chair.

Mr. C. Markus showed a case of peripheral and central bulging of the cornea, also a case which presented unilateral retraction of the upper lid and von Graefe's sign.

Mr. C. Blair showed a case of endothelioma of the lacrimal gland.

Mr. Leslie Paton reminded the Society of a case of endothelioma of the orbit in a woman. The growth was removed, and then it recurred locally, and the orbit had to be eviscerated, while the lymphatics leading down to the glands were excised. The subsequent history was that there was further invasion of glands in the anterior triangle; these were removed, and a further invasion of glands took place above the clavicle, and then the glands in the axilla became involved. She ultimately died of a very large intrathoracic secondary growth. The case was said to be pathologically

simple endothelioma, but the constant recurrence of it justified one in suggesting that a very thorough watch should be kept on the patient, and if there was any sign of local recurrence, a radical operation should be done at once.

Mr. George Coats described the pathological features of a case of marginal keratectasia formerly shown to the Society by Mr. J. H. Fisher. They consisted essentially in a loss of the superficial lamellae in the periphery of the cornea, and their replacement by a loose vascular fibrous tissue. The membrane of Descemet had undergone enormous compensatory thickening, and showed many ruptures plastered over with new layers of hyaline substance. In one area the epithelium was oedematous and asquamating, either as a result of commencing ulceration, or of leakage from the anterior chamber. From a study of recorded cases it was shown that marginal keratectasia is usually the result of "Furrow Keratitis" (Schmidt Rimpler) or "Marginal Atrophy of the Cornea" (Fuchs), a condition in which, without ulceration, a groove develops in the upper periphery of the cornea, usually between an arcus and the limbus; ectasia, distortion of the cornea, and astigmatism against the rule, were produced by the giving way of the floor of the groove. As to pathogenesis, there were two opinions: (1) that the condition was purely degenerative, and (2) that it was inflammatory. In favor of the first, there was the common absence of injection clinically, and of round cell infiltration microscopically, as well as the association with arcus senilis; in favor of the second, the occasional presence of injection and even photophobia, or of pseudopterygium or pterygium, and the fact that vessels crossed the floor of the groove. Actual ulceration was probably excluded by many cases carefully watched over long periods. It was possible that a combination of these two explanations was correct, viz., that the products of degeneration set up a low form of inflammation, or that a low form of inflammation induced degeneration.

Mr. George Coats read a paper on an unusual instance of colloid excrescences of the membrane of Bruch. The case was reported chiefly because it afforded an opportunity, rarely obtained, of comparing an ophthalmoscopic appearance with its histological foundation. The patient, aged 58, was achondroplastic and had glaucoma in both eyes. V. R.—Fingers at 3 ft. H. and 7. D. V. L.—Perception of light. In the right eye the media were fairly clear, and the fundus was strewn in every part with flat, scaly,

irregular, white or grey areas, with a slightly wavy surface, and with distinct glitter on moving the light. The borders were sinuous and rimmed with pigment; pigmentation also occurred on the surface, especially towards the periphery. The choroid generally was degenerate. In the left eye there was a detachment of the retina; this eye was subsequently excised. Pathological examination showed that the areas were due to an aberrant type of colloid excrescences of the membrane of Bruch. In addition to the ordinary rounded forms, flakes and irregular spongeworks of colloid material were found. The choroid was very degenerate, and showed evidence of the former presence of a flat detachment. All the measurements of the globe were notably small, and in other respects a degree of infantilism was suggested. The relationship of these conditions with the glaucoma was discussed. The glaucoma itself was peculiar in that there was no adhesion of the corneo-iridic angle, and so far as could be seen no hindrance to drainage. It was suggested that the rise of tension might be due simply to a disproportion between the secretion and the amount of drainage available—normal so far as it went, but insufficient. The other eye, however, though glaucomatous, was not unduly small, at least in its external measurements. Another possibility was that the iris root had been in apposition with the ligamentum pectinatum, but not adherent, and had come away in the fixing fluids. Or there may have been an alteration in the chemical nature of the fluid to be drained. The pathology of glaucoma with open corneo-iridic angle was discussed. The papers were discussed by Mr. Treacher Collins, Mr. Markus and Mr. Herbert Fisher.

C. DEVEREAUX MARSHALL.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Sympathetic Ophthalmitis.

A clinical evening was held at the Medical Society's rooms, Chandos street, W., on Thursday, November 10, 1910, under the chairmanship of Mr. Gustavus Hartridge, vice-president. Mr. Winfield Roll showed a case of sympathetic ophthalmitis which had recovered. The patient was a boy who had his cornea wounded by means of a jagged piece of china, and sympathetic ophthalmia ensued six weeks from the original injury. Atropine and hot

fomentations were applied, and mercury was given internally. He had now 6/12 vision in the sympathizing eye, while vision in the eye originally injured was 6/36. No intraocular injections had been used. Mr. George Coats showed a series of slides illustrating atypical coloboma of the iris and lens, with persistent mesoblastic strand. The case, he contended, favored the theory of Hess, that coloboma of the lens was due to fibrous strands of that sort. Not only the vitreous and the retina showed changes but the choroid also. It favored the theory that atypical coloboma was due to pressure on the back of the eye of such persistent strands when the lens almost filled the eye. In the upper part of the eye there were certain areas of choroidal atrophy, although there was no persistent mesoblast. If found alone, they would be taken for patches of old choroiditis; thus illustrating the difficulty which often arose in differentiating between a congenital abnormality and a patch of inflammation. That difficulty had given rise to the idea that true coloboma did not occur in the macula; whereas Mr. Coats thought it did. The changes in the fundus exactly followed the retinal vessels. Another interesting point was in connection with the development of the zonula; he favored the mesoblastic origin. The cases upon which he based his remarks were mostly cases of aniridia.

Recurrent Melanotic Sarcoma of the Conjunctiva.

Mr. W. H. Jessop showed a case of recurrent melanotic sarcoma of the conjunctiva which was shown before the Society seven years ago. At that date the tumor, but not the eye, was removed, and proved to be melanotic sarcoma. There was a recurrence in 1904, up to which time it had remained quiet, and there were only a few brown pigment spots. It was wandering pigment. In May, 1907, there was more congestion, and then another swelling, at the site of the old one. That recurrence was removed, and the site canterized. She came again in November, this year, having had no pain, and with vision 6/9, there being a small swelling under the upper lid. It was removed, with the surrounding conjunctiva, and found again to be melanotic sarcoma. Nothing more was now to be seen except two little patches. He had never seen a case of the kind last so long, with such slight recurrences. The chairman commented on the possibility of being more conservative with eyes the seat of such tumors. Mr. Treacher Collins alluded to three cases of epibulbar sarcoma which he had removed, without taking away the eye, and there had been no recurrence; one of them having been

done twenty years ago, and she had had the growth partly removed before he saw her. But that was not a melanotic growth, but was definitely sarcoma, as confirmed by Mr. Butlin. Mr. Brewerton believed that in Mr. Jessop's case the outlook was now less hopeful, and that a general metastasis was setting in, which would kill the patient. Something more should, he urged, now be done to the conjunctiva, and the brown pigment patches should be excised. Mr. Jessop also showed a case of solitary tubercle of the choroid, in which there had been no vitreous opacities, and very little pigmentation. The condition now looked like retinitis proliferans. Mr. J. H. Tomlinson showed a simple projecting polariscope for use in testing color-perception, and illustrated it with a patient whose illumination perception was normal but color-vision abnormal. Dr. John Hern showed a case of kerato-irido-cyclitis. This condition he regarded as a clinical entity. The causation had puzzled him, but some of the patients had been syphilitic. In treatment he insisted on the value of peritomy, getting right down on the sclera by means of a small curette, to destroy the blood vessels on the surface of the sclerotic. He usually tried treating such cases with mercury first. Mr. Bishop Harman showed twin scissors for sclerotomy (Herbert's operation), which worked like a punch, but without punching anything out. Mr. R. Foster Moore showed three cases of severe loss of sight following haemorrhage. One was haemorrhage after miscarriage, another haematemesis, and the third, prolonged bleeding from the eye. Mr. Juler showed a case of sarcoma of the iris, the interest of which was that it might be cyst. Mr. Treacher Collins said the case was under his care, having been sent to him by Mr. Taylor, of Brighton. He advised him, before sending the case up, to puncture it; that was done, but nothing escaped, and there was no alteration in the appearance of the tumor. He had been expecting to see the case. Mr. Hekley showed a case of injury to the eye. It was a degenerate eye, the sight having been lost during the last nine years. Mr. Cruise showed a case with fibrous mass over the disc, which he believed to be the result of injury. There might have been a coloboma in the region of the nerve, towards the lamina cribrosa, and the coloboma might have filled up with clot. Mr. Coats believed it to be due to rupture of the nerve, but Mr. Mayou took another view, and that the history of injury was simply a coincidence.

C. DEVEREAUX MARSHALL, F. R. C. S.

Correspondence

On a Punch for Opening Into the Nose Through the Inner Wall
of the Lachrymal Sac.

Editor of the OPTHALMIC RECORD:

Dear Sir: To any who may have noticed my description in the OPTHALMIC RECORD of October, 1909, of an instrument for perforating the inner wall of the lachrymal sac, I wish to issue a warning, that while the instrument is all right, the operation is no good. In my article, I was somewhat reserved as to the ultimate results of this operation, and subsequent experience showed that no matter how large a hole I punched through into the nose, it closed up very rapidly, so that nothing permanent was accomplished by it. I have therefore abandoned the operation entirely, and my experience makes me doubt whether the operation of Toti will give any better results in the long run, although it may possibly be that the covering of the cut edge of the bone with a mucous membrane may prevent the rapid formation of granulations from its edge. I wish the original operation of Woolhouse to the beginning of the last century, when I should have said the 18th century.

Omaha, Nebraska.

H. GIFFORD.

Notes and News

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR. FRANK BRAWLEY, 72 MADISON STREET, CHICAGO.

After January 1, 1911, Dr. Robert Scott Lamb of The Cecil Washington, D. C., will limit his practice to the medical and surgical treatment of the eye.

The following Denver members of the Colorado Ophthalmological Society have taken offices in the new Metropolitan building for physicians and surgeons: Drs. W. C. Bane, Melville Black, E. T. Boyd, Edward Jackson, G. F. Libby, W. A. Sedwick and E. O. Sisson.

At the December meeting of the Milwaukee Oto-Ophthalmologic club the following officers were elected: For President, Dr. Charles Zimmerman; Vice-President, Dr. George F. Zaun; Secretary and Treasurer, Dr. Samuel G. Higgins.

Dr. Frank Newell Lewis of New York City, surgeon to the Manhattan Eye, Ear and Throat Hospital and Professor of Ophthalmology in the Postgraduate Medical School, died November 13, 1910, aged 53.

Nathaniel Ginsberg is said to have been fined \$100 and costs in the Municipal Court of Chicago for practicing medicine without a license. He used a card on which was printed, "Dr. N. Ginsberg, Eyesight Specialist and Defractionist."

Dr. Christian R. Holmes of Cincinnati, Ohio, delivered an address entitled, "Dr. Dandridge as an Adviser," at a recent memorial meeting held in honor of Dr. Nathaniel Rendleton Dandridge.

Dr. Robert H. Duncan, a member of the staff of the Manhattan Eye, Ear and Throat Hospital, New York City, and of the Eye and Ear Infirmary of Long Island College Hospital and the Williamsburg Hospital, died recently, aged 48.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
3 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) *Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Alipert (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) F. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) *W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX CHICAGO, FEBRUARY, 1911 No. 2, NEW SERIES

A FATAL CASE OF DEMENTIA FOLLOWING CATARACT EXTRACTION.*

EMORY HILL, M. D.,

Late House Surgeon, Wills Eye Hospital, Philadelphia.

I am indebted to Dr. Wm. Campbell Posey for permission to report the following case from his service at the Wills Eye Hospital:

Mrs. F. S., aged 72 years, was admitted to the hospital on October 1, 1909. On the following day (October 2), Dr. Posey performed a combined cataract extraction on the right eye. The operation was perfectly smooth, and the patient was comfortable in bed with both eyes bandaged. On October 4 the bandage was removed and the eye was quiet, the anterior chamber reformed, with a considerable amount of cortical material in the pupillary space. On October 7 the eye was still quiet, and the patient was allowed to get out of bed, with only the right eye bandaged. In the afternoon (fifth day after the operation) the nurse reported that the patient had refused to eat dinner, saying that bugs were crawling on the food. She also refused medicine, and soon developed a mild delirium in which she talked and sang incessantly. She was given bromides and chloral, and morphia, at intervals during the next forty-eight hours. Her heart action became feeble, her respirations rapid, and her mental condition worse. Frequent small doses of calomel, strychnia, and nitroglycerine were administered. At no time was she violent, her delirium being happy, with occasional attempts to answer questions, but never quite successfully. Her temperature rose to 102° F., with a proportional increase in the rapidity of pulse and respiration. She insisted that she was accustomed to drinking one quart of beer per day, though it was not possible to determine whether she understood the questions asked about her habits in this respect. She was given whisky on the supposition that she was accustomed to the use of alcohol.

*Read before the Wills Hospital Ophthalmological Society, January 3, 1910.

On October 10 she was removed to the Philadelphia Hospital, where she died eight days later. Dr. Sykes, chief resident physician at the Philadelphia Hospital, very kindly furnished the following notes of the subsequent history of the case: "Mrs. F. S. was admitted to the detention ward of this hospital on October 10, 1909, and died on October 18, 1909; the cause of death being senile dementia. Complications: Asthenia, bronchitis, and starvation. On admission she was restless and talked incoherently. The next day she became feverish and talked incessantly, grasping at imaginary objects and not apparently being able to recognize objects at hand.

"Physical Examination: Is a well developed, fairly nourished, white adult female, well advanced in years. Eyes are equal; pupils are unequal. Right pupil is irregular, and shows result of a former iridectomy. There is some inflammation over line of incision. Tongue is coated with a brown fur and is dry and tremulous. Pulse rapid, irregular, and of high tension. Chest shows poor contour and is flat. Expansion is poor. Lungs are apparently normal with the exception of some moist rales toward the apices. Heart sounds are irregular, feeble and rapid, though there are no murmurs. Abdomen is flabby and skin is wrinkled. Special organs are negative. Extremities appear to be spastic and resist all movements.

"October 16, 1910: Patient very delirious and refuses all food and has to be fed through a nasal and stomach tube. Now has a marked bronchitis. Pulse very weak. Patient remained in about same condition until she died (October 18th)."

The interesting features of this case are the late developments of the delirium; the entire absence of any symptom of fright or attempt at violence; the febrile development and accompanying disturbance of circulation and respiration; the uneventful recovery of the eye from the operation; and the fatal termination of the case without any remission of the mental symptoms.

In Posey and Spillers' book on *The Eye and the Nervous System* the subject of Mental Effects on Eye Operations is treated exhaustively in a chapter by Dr. Posey. Of 24 cases collected by him, 11 occurred after simple cataract extraction, 3 after iridectomy for glaucoma, 8 after combined cataract extraction, 2 in traumatic cases in which no operation was performed. Out of 770 cases of cataract extraction in the Wills Hospital, mental disturbances oc-

curred in 16 cases, or 26.7%. Dr. Posey suggests that the percentage is perhaps lessened by the anticipation of such disturbances and the administration of sedatives at the slightest evidence of mental symptoms.

The pathology of such cases is but little understood, as is the pathology of all psychoses. The etiology would seem to be indefinite, inasmuch as a great variety of causes are given by numerous observers, varying from simple homesickness to previous mild insanity which has escaped the observation of family and physicians. Change of habits and surroundings is thought to account for these cases. In support of this belief, Löwy states that in Schnabel's clinic at Innsbruck the proportion of cases of mental disturbance following cataract extraction was much larger than in the Vienna hospitals, owing to the fact, he thinks, that in the former the patients were mountaineers, accustomed to a rugged, unrestrained life, whereas in the latter the patients were from the city of Vienna and hospital life offered less change from their hospital routine. A previous tendency to insanity is recorded in some cases: the bandaging of both eyes; the excessive use of atropia; fear, especially in alcoholic, senile, and debilitated persons; restriction of food before and after operation, with consequent inanition; homesickness; atheroma, often in alcoholics; auto-intoxication; excision of part of the iris, have all been credited as etiological factors. Dr. Posey gives most credence to the belief that preoccupation of the mind, encouraged by the enforced idleness, together with anxiety during the operation and suspense over the outcome, aided possibly by delight at a glimpse of external surroundings for a moment between the completion of the operation and the application of the bandage, accounts for these cases.

The case reported above would seem to differ from the usual, in that there was no fear or anxiety exhibited, and no violence attempted; but simply a dementia developing later than is customary, and progressing until death, with the physical accompaniments of senility. Opposed to this sort of case, are those of acute mania, controlled only by large doses of sedatives, and recovering without permanent damage after the sleep and rest induced by the drugs.

Since the opening of the cataract wards in this hospital, three months ago, two patients, one the subject of a cataract extraction, the other of an iridectomy for chronic iritis, have developed a mild

delirium. with confusion of ideas, slight hallucinations, and obstinacy in regard to treatment.

Two patients have had a violent delirium which required the constant efforts of several attendants, and which disappeared entirely under sedative treatment. One of these patients became unmanageable forty-eight hours after cataract extraction, and was entirely normal twenty-four hours later, with no recollection of her delirium. The second case showed no symptoms of mental disturbance until seven days after operation, when she began to insist on going home. Owing to a less vigorous use of hypnotics she awoke with the same condition on the night following her first delirium, and suffered a repetition of the same. However, in another twelve hours she was normal, and remained so. In this case the patient had hesitated about having an operation after being admitted for that purpose, but finally consented. Her anxiety was clearly due to the fact that she had left an epileptic son at home, and feared that he might not be looked after properly in her absence. The use of a bandage could not have had any influence in this case, for, owing to the presence of a slight conjunctivitis, both eyes were left unbandaged from the time of the operation. The application of ice pads during the entire twenty-four hours for six days interfered with her sleep; so, considering this fact, together with her worry about her son, it seems probable that the use of hypnotics earlier might have prevented the delirium. It is worth while to note that hyoscine, gr. 1/100 hypodermically, increased this patient's delirium; and the administration of morphia, gr. 1/4 hypodermically, completely controlled it in a few moments.

Another patient who confessed to drinking enormous quantities of beer developed a typical post-operative mania, and was entirely relieved in twenty-four hours by sedative treatment and the administration of alcohol.

A case of low, muttering delirium occurred, in which atropia was thought to be possibly the cause. An old man got out of bed in the night and fell to the floor. Whether his mental condition caused the fall, or vice versa, it was impossible to say. His heart action was bad, his breathing stertorous, he picked at the bed clothes and talked incoherently. The urine was normal, and there was no paralysis to indicate a cerebral hemorrhage. His atropia, which

had been given more generously than usual owing to an iritis, was immediately stopped, and he made a rapid recovery.

These hitherto unpublished cases are from the services of Drs. Conrad Berens, Wm. C. Posey, S. R. Risley, and Wm. Zentmayer. For their courtesy in allowing me to report the cases I desire here to express my thanks. It would seem from the experience in the Wills Hospital, that no definite cause for such cases can be found, nor means of anticipating them. The use of large doses of sedatives, the administration of alcohol to patients who are accustomed to it, getting the patients out of bed and allowing them the use of the eye which has not been operated upon, followed by tonic and supportive treatment, has resulted in complete recovery, so far as I am aware, with the exception of the fatal case above reported.

A CASE OF ANISOMETROPIA.

BY R. P. O'CONNOR, M. D.,

An account of a case of anisometropia, by Dr. Kollock in the November OPTHALMIC RECORD, prompts me to report one which in many respects is similar. My line of treatment, however, was very different from his and unexpectedly good results were secured.

The patient was 49 years of age, was a catholic sister whose special occupation was that of a teacher of drawing in a Manila convent. She first consulted me on September 25, 1908, complaining that she could no longer see well enough at a distance to keep at her work. Said she had no trouble in reading. She was markedly cross-eyed and had been for over twenty-five years. She then explained that one eye was used for distant, the other for near vision. It then became evident that it was a failure of accommodation in a hyperopic eye that brought her to me.

Examination gave the following:

Vision—O. D.=20/30—O. S.=8/200.

Esotropia (alternating), 26° ; hyperphoria (left), $11\frac{1}{2}^{\circ}$.

Refraction under homatropin cycloplegia—

O. D.= S 1.50 \bigcirc + cyl. .50 ax 150=20/20+

O. S.=—S 3.25 \bigcirc —cyl. .75 ax 15=20/20+

It was my opinion that the above correction would not give her binocular vision, in view of the long duration of the squint, so I advised operative treatment, to which she readily consented. Accordingly, on October 1, 1908, two operations were performed on the left eye, one a central tenotomy of the internus, the other an

advancement of the externus. The central tenotomy was an open operation and only a strand of tendon was left at each margin. The rules of her order prevented her from staying at the hospital, so the best I could do was to bandage the one eye. The eye was kept bandaged till October 12th, on which date the phorometer showed $2\frac{1}{2}$ esophoria and no hyperphoria, this with her glasses. She now had a binocular vision of 20/15 with distant correction, to which for near I added + S 2, with which she could read the finest print. Images of letters were equal. Binocular fixation field practically normal in size. She was directed to wear her glasses all the time and told that she might have some trouble in doing so.

On November 3d the esophoria had increased to 6° , but she had already become adjusted to her glasses and was very much pleased.

Six months later (May 28, 1909) the esophoria was 8° at 20 feet but only 3° at the reading distance. She was having no trouble whatever with the glasses or with her eyes in any way in this, in spite of an esophoria of 8° . I have noticed this in several cases after operation on the muscles, but have seen no mention of it in any books or elsewhere. I have explained it to myself as follows: Before operation the muscle is relaxed and stretched—on the “slack” in other words. Muscles ordinarily are never in such a condition. After operation as long as there is the stimulus to binocular vision this slack is taken up with so little effort as to produce no disturbance. But when a diplopia is produced the muscle relaxes more than a muscle of normal tone. This is why the idea of contracting the relaxed muscle, combined with relaxing the contracted muscle, appeals to me so strongly. While a balance of contraction may not be so bad as a balance of relaxation it is much more difficult to secure, as the contracted muscle tends to pull out the stitches by its continuous elastic traction. The more accurately we are able to combine the two the closer will we approach a normal tone and balance.

Dr. Kollock thought that it was not “worth while” to try to completely treat his case. I think this case shows that it is worth while as, from an accommodative standpoint, my case was practically as old as his. In view of the fact that he was able to secure equally good vision in each eye I feel sure that a little operative treatment would have brought as good results as in my case.

CONTUSIO BULBI.

BY E. E. BLAAUW, M. D.

BUFFALO, NEW YORK.

Since the exhaustive treatise by Wagenmann in the 2d edition of Graefe-Saemisch Handbuch of contusion of the eyeball it seems superfluous to report individual cases. However the case, which came lately under my care may be able to remove the word "vielleicht" (perhaps) from one of his sentences.

In said IX Bd. 5 Abt. at page 412 Wagenmann mentions that cloudy deep contusion-opacity is due chiefly to an edema and must be considered as a swelling phenomenon, of which lesions of the endothelium are *perhaps* the chief cause.'

The following case will throw some light on this condition:

A middle aged man came to me complaining of soreness and redness of the right eye. While automobiling in the country two days previously, passing some farmers, he received a charge of pods and peas full in the face, which prevented the use of his right eye for about half an hour. The following day his eye felt uncomfortable and became red. When I examined him I found some parenchymatous opacities in the lower half of the cornea with some irregularity of the epithelium. The eye was very sensitive to the light and the pericorneal injection increased markedly during the examination; tension was somewhat lower. Some 30 hours later the subjective feeling was improved, but the iris had not dilated under atropin. I dropped in Fluorescein and it was most instructive to see after a couple of minutes, how the backpart of the cornea showed up green with incident light. The staining of the lower corneal half was pretty equal right away, while in the upper part the green showed up in minute drops. A little later nearly the entire cornea became stained and I was able to demonstrate this deep coloring to a few people. 4 days later—thus 6 days after the accident the endothelium lesion could no more be demonstrated. The parenchymatous opacities in the lower half were still present.

Wagenmann writes on the same page that the parenchymatous grayish opacity can be combined with anaesthesia of the surface.² This condition was most strikingly present with the patient. We ought to be on our guard, for in this condition the appliance of heat is recommended, and we must warn the patient to be careful lest he burns his eye. And we must know this fact to prevent

the patient from considering himself out of danger, when the irritative stage is passed.

The momentum of the foreign body combined with that of the patient in rapid motion must have produced an overstretching of the cornea, the results of which were demonstrable in the endothelium. This straining is entirely different from what one sees after swallowing uranin in an inflammatory process of the vascular coat of the eye, which differential stain Hamburger showed the first.³ It is very pretty and easy; the only drawback is the nasty taste, but dry bread overcomes that.

Fluorescein, resp. Uranin, is not used half as much as it should be.

1. Man findet die wolkgietiefe Kontusionstrübung besonders deutlich, wenn ein kleinerer stumpfer Fremdkörper die Hornhaut mit erheblicher Kraft getroffen hat,—Die Trübung ist im wesentlichen als ein Ödem und eine Quellungerscheinung aufzufassen, bei deren Entstehen Läsionen des Endothels *vielleicht* die Hauptrolle spielen.

2. Am häufigsten kommt es nach kurzer Zeit zu einer ausgesprochenen umschriebenen oder flächenhaften parenchymatösen grauen Trübung in den mittleren oder tieferen Schichten, und die mit Anästhesie der Oberfläche einhergehen kann.

3. Dr. C. Hamburger. Ueber das Färben lebender menschlicher Augen zu diagnostischen und zu physiologischen Zwecken.

Klin. Monatsbl. f. Augenh. 1909. Mai. Page 512.

SOFT FIBROMA OF THE CONJUNCTIVA.*

By JESSE S. WYLER, A. B. M. D.

CINCINNATI.

This rare condition has been described in a very limited number of cases, and to this group, I wish to add one which came under my observation.

The patient was first seen by me October, 1909, with the complaint of burning eyes and lids sticking together. A very neurotic woman of 43, with a sick husband as a predisposing factor. Has glasses for constant use, +1.5 spf. both eyes. Examination revealed a subacute hypertrophic conjunctivitis which responded to several applications of protargol 10% and zinc sulphate 1% eye-drops three times daily.

*Read before Section of Specialties, Academy of Medicine, November 7th, 1910.

I did not see the patient again until May 1st, 1910, as she lives in Bucyrus, Ohio. On the above date she presented herself at the office in a general condition much worse than when I had last seen her. Her eyes burn all the time, can't sleep, has rheumatism and discolored area around joints, in fact, she is on her way to a local hospital to be treated for her condition of peliosis rheumatica. She demanded relief and was given a weak solution of holocain and adrenalin combined with an alkaline wash for temporary use.

On May 16th I was called to the hospital to see this patient. She was making everybody who came in contact with her, miserable through her complaints of terrible scratching in her right eye. Upon drawing down the lower lid, I was surprised to see a pink nodule about the size of a bean extending from the conjunctiva just below the tarsal cartilage and somewhat to the inner angle (Fig. i.) The mass was soft and firmly attached with a broad base. Manipulation started it bleeding; I thought that I had some cyst to deal with, as the location was outside of the Meibomian glands and it could not be a chalazion. On the following day after cocainization I plunged a linear knife into the tumor and found that it bled profusely but was not reduced in size. I tried to curette the interior but did not succeed in getting any part of it away. With a scissors I cut away about one-third of the mass, hoping to have the contraction obliterate the rest.

On May 26th finding no progress, after getting the tumor in the grasp of a large chalazion clamp, injection of cocaine 1% I carefully circumscribed the mass with a small scalpel undermining and removing with scissors. Closed the conjunctival wound with two silk sutures. Perfect healing in three days.

The tumor was placed in normal salt solution and sent to the **laboratory** for immediate investigation. The sections were cut and stained with haemotoxylin and eosin and given to me for examination. In as much as the specimen was rather poorly made, the histological elements are not evident in an absolutely satisfactory manner. The epithelium of the conjunctiva can be seen covering the tumor except at its upper surface, which shows a growth of granulation tissue due to the first incision and the week following, before the complete excision was performed. The rest of the section displays nothing but fibrous connective tissue, with spindle shaped nuclei and many blood vessels. The microscopic examina-

tion admits of only one possible conclusion, namely a *fibroma* of unmixed variety. The gross appearance together with the tendency toward bleeding and the soft consistency of the mass makes me limit the tumor to one of the soft variety.

The extreme rarity of the condition was only revealed to me upon a review of the literature where I find less than 15 cases reported and the work of Elchnig is practically the only complete study of the subject. Fibroma of the conjunctiva really comes under the head of the polypoid affections and in the majority of cases is found pedunculated, very soft, bleeding very easily causing those cases where bloody tears are spoken of. Its principal location is in the conjunctiva of the fornix, and the growth of the tumor is remarkable for its rapidity; as in my case where I can positively assert that the entire development occurred within two weeks.

Parsons (Pathology of the Eye) gives very little space to the subject and reports no cases of his own. He states that the surface of the fibroma is smooth and soft, thus differentiating it from a papilloma which shows the roughened papillæ protruding. They grow from the fornix most often, but occasionally the canthal mucous membrane and the semi-lunar fold furnish areas for the development of this rare growth. A normal conjunctiva always covers the surface.

The histological features, according to Saemisch (Krankheiten der Conjunctiva) are very simple, in that the tumor consists chiefly of a loosely constructed base which contains a great number of young connective tissue cells and not infrequently groups of round cells with a great many dilated blood vessels running through the mass. Surrounding, a many layer plaster epithelium is visible (which is perhaps the conjunctiva in slightly changed form).

Hilbert in the *Centralblatt für Augenheilkunde* describes the last case of which I can find any record, occurring in a 20-year-old man. It produced the symptoms of a chronic conjunctivitis and grew from the fornix of the upper lid. This case, however, had a pedicle and was only 2 mm. in diameter at its free margin. He removed the growth with a scissors and six weeks after had had no recurrence. There is no anatomical findings in his report.

Because of the great tendency to bleeding and the rapid increase in size, the treatment is purely an operative one. Provided the growth is pedunculated, a ligature may be tightly passed around the stem and thereby stopping any hemorrhage, however, as in my case, a clamp must be used and the entire mass removed. If the

work is carefully performed there is no danger of recurrence, the soft fibroma proving a most benign species of new growth.

I have seen my patient within the last week and beyond a linear scar there is no trace of her former condition. The only excuse I can offer for bringing this subject before you is the infrequency of its occurrence, and in order to add my case to the fifteen already published.

The Groton.

THE USE OF DIAGNOSTIC DOSES OF OLD TUBERCULIN IN DETERMINING THE ETIOLOGY OF OPTIC NEURITIS AND NEURO-RETINITIS OF OBSCURE ORIGIN: THE REACTION IS SPECIFIC, DEFINITE REDUCTION IN SIGHT.

BY WILLIAM E. GAMBLE, M. D.

CHICAGO, ILL.

The ophthalmologist occasionally sees cases of optic neuritis and neuro-retinitis in which the Wasserman test is negative, as well as the examination of the urine, and in which there are no other evidences of intra cranial pressure. The etiology of these cases usually remains obscure, one physician ascribing it to one thing and another to something else. It would seem from my experience in the cases described below that the use of sub cutaneous injections of from two to four mg. of old tuberculin might become a routine measure as a means of clearing up the etiology in some of these cases.

It may be true that tuberculous optic neuritis and neuro-retinitis is more common than we have been led to believe.

Reports of Cases.

Case I. Case shown at October meeting of Chicago Ophthalmological Society. *Optic Neuritis.*—June 12, 1909, Dr. C—— came to my office complaining of disturbance in sight of the right eye, which he had noticed for the last two days. In my absence from the city Dr. E. K. Findlay saw the case and made a diagnosis of optic neuritis.

I saw the patient June 18, the optic neuritis being then quite pronounced. In the absence of headache, dizziness or other symptoms of increased intra cranial pressure aside from the neuritis I

was of the opinion that it was not due to extra intra cranial pressure, but to some general disease manifesting itself in the eye.

Unguentum hydrarg in dram doses was used for the next two weeks. The patient's weight in that time was decreased by eleven pounds.

June 25 the Wasserman test was made with negative result. Examination of the urine had also been negative. Physical examination negative.

The subjective symptoms during this time were carefully recorded by the patient, and I shall give them briefly, for the reason that the involvement of the fellow eye was preceded by them.

Subjective symptoms in the right eye: On June 10, on looking at the center of the filament of an incandescent light the upper part of the filament looked bluish, while the lower part looked normal.

Two or three days later, on looking at the same incandescent light, the filament looked like a series of dots or segments moving continuously. These phenomena were observed, too, on reading small print. In June 23 the patient had lost entirely the ability to see red with the right eye. On looking at a bed of geraniums the flowers looked grayish green; and lights, as well as sunlight, looked like mercury lamps.

By July 19 the patient's vision was R.E.8/200, L'E'20/20. The outline of the left optic disc began to be blurred. The subjective symptoms preceding this optic neuritis in the left eye were much the same as those in the right eye. On July 14 objects seen with the left eye had a slightly luminous appearance; for instance, the human countenance had a ghastly hue. In looking at the electric light the left half of the filament looked blue. It will be remembered that to the right eye the upper half looked blue, while the lower half looked normal, this pointing to the conclusion that the focus of the disease was in the region of the chiasm.

On July 15 the von Perquet test was positive. On July 16 began giving therapeutic doses tuberculin T. R., giving 1/500 mg. every other day and increasing to 1/30 mg. at the end of six months. The patient's weight at the beginning of this treatment was 127 pounds. After two weeks of this treatment vision in the left eye seemed to be improving. On the 23d, on looking at the same bed of geraniums he saw some spots of red in the upper nasal quadrant of the field. By Aug. 15 vision in the left eye had become normal

with the exception of some disturbance in the peripheral field. The optic neuritis had markedly decreased in both eyes. Weight had increased five pounds. This progress was so rapid that it raised the question whether or not the disease was of a tuberculous nature, knowing as I did that the von Perquet test is not always reliable, but in my hands the hypodermic injection had always proved so.

I wanted to clear up this matter, and I explained to the doctor my reason for using a diagnostic dose of the old tuberculin and also the unpleasant symptoms that might follow, and requested him to keep a careful record of what symptoms might show themselves.

On Sept. 15, R. E. 20/40 and central vision L. E. 20/20 plus.

At 12 o'clock an injection of four mg. old tuberculin was given subcutaneously. Temperature 98.6, F. and no change until 5:30 the morning of Sept. 16, when the temperature was 99.4 F. At 8:30 it was 100 F. and remained a few points less than this until 3:15 in the afternoon, when it was 100 F. or more, until the highest point was reached at 7:30, when it was 100.7 F.

On Sept. 17 record was made at 1:30 a. m.; temperature 99 F. At 6:30 a. m. 98.8, and after that remained normal.

During this time his weight was reduced to $133\frac{3}{4}$ pounds, having lost one and one-fourth pounds. Could not read double great primer type with the right eye during the time of the increased temperature. The afternoon of Sept. 16, before taking the injection, he could read long primer type easily.

About 12 o'clock Sept. 17 I took the patient's vision, forty-eight hours after the injection, and found vision R. E. 20/100 plus, as compared to 20/40 before the injection.

In the left eye the only change in vision he discovered was that in looking at black print the letters looked gray.

On Sept. 20 he could read long primer, the type he read before the injection four days before.

Considerable systemic disturbance was produced. On awakening at 5:30 on Sept. 16, about seventeen hours after the diagnostic dose was given, he felt sick and down-hearted, with restlessness and great exhaustion, and this feeling increased during the day. Had no appetite and felt nervous and unstrung. The eyes both developed considerable tenderness on pressure. Eyes ached severely, there was marked soreness in the left eye, bones ached all day, and in the afternoon head ached in the frontal region. The teeth became very sore and to close the jaws was painful. The skin was hot

and dry until about 9 p. m., when a profuse perspiration took place. Somewhat jaundiced.

Sept. 17. On examination at this time I was unable to detect any difference in the appearance of the fundus oculi from what it had been before this diagnostic injection.

Sept. 27. Vision R. E. 20/30. Nov. 10 he weighed 149 pounds. At present he weighs 147 pounds.

Dec. 13. Vision R. E. 20/15 with a correcting lens cyl. + 0.50 ax. 60. L. E. 20/15 with lens cyl. + 0.50 ax. 60. Still some disturbance in perception of colors. Electric light filament appears bluish white. Vision has remained same up to present time. Red letters show different shades of red.

Ophthalmoscope shows secondary atrophy in the right eye, but little if any change present in the left.

This pronounced reduction in sight occurring about seventeen hours after the diagnostic dose was given and lasting about four days is the symptom of chief importance and to my mind makes out definitely a case of tuberculous disease involving the optic nerve or tracts in region of chiasma and must be considered in the nature of a specific reaction, and, in view of this diagnosis, the great value of tuberculin T. R. in small doses is shown.

At no time did this patient receive a larger dose than 1/30 mg., and this dose was only continued for a short time, because it was found that his appetite became poor and he lost weight during the ten days that it was administered.

During the last six months he has been taking hypodermic injections of 1/40 mg. once a week. His vision is normal at the present time, field normal with exception of small, rather indefinite, relative scotomata, but have thought best to continue it.

I depended wholly upon the clinically symptoms for the dosage given him and secured some information from his temperature record. He took the record about every two hours per rectum from June 18, 1909, to Jan. 16, 1910, during the day and frequently at night.

Tuberculous Neuro-Retinitis.

Case 2.—On Nov. 9, 1910, Dr. John M. P——, forty years old, weighing 240 pounds, came to me on account of disturbance in vision of the left eye, first noticed two days before. Examination revealed papilitis of the left eye. Vision R. E. 20/20, L. E. 20/20. Vision in the peripheral field left eye quite contracted. He

was in the best of health, never felt better, and was unable to account for the disturbance in sight. The Wasserman test was made, the result being negative. Examination of the urine was also negative.

I explained to the doctor my experience in Dr. C——'s case and advised that we make use of a diagnostic dose of old tuberculin.

November 12, 2 p. m., gave $2\frac{1}{2}$ mg. of old tuberculin. Before giving this I explained to him the general symptoms we might expect if a positive reaction was obtained and also that if reduction in sight followed it would, to my mind, make out a case of tuberculous disease of the eye.

Before giving the injection the vision was R. E. 20/20, L. E. 20/20, and he could read all of the Jäger reading chart with either eye. He reported that twenty-six hours after the injection vision became reduced in the left eye; forty-eight hours after vision was at the worst; that he could not then read anything on the Jäger chart. Was unable to see any of the letters on the Snelling test type card at twenty feet with the left eye. Vision in right eye during this time not affected.

Nov. 15 he came to my office. Vision R. E. 20/20, L. E. 20/200. Vision comes and goes. Unable at time to see 20/200. Can see two or three words in the last paragraph of the Jäger chart.

He reported Nov. 16 "distant vision not improved," Nov. 17 "blur not so marked; distant vision about the same; can see the two lower paragraphs of the Jäger card." Nov. 18: "Can read the two top lines of the Snelling test type card."

Nov. 21 he returned to the office. Vision R. E. 20/20, L. E. 20/70. Reads last two paragraphs of Jäger reading chart.

At this time, this being about nine days after the diagnostic dose, I ventured to give him 1/500 mg. T. R.

Nov. 25 I saw him. Vision R. E. 20/20, L. E. 20/30. Considerable exudate about the macula, concentrically arranged, clinically being a typical picture of albumenuric neuro-retinitis.

On Nov. 28 my record shows: Beginning recession of the swelling, but more exudate in the retina.

Dec. 2, marked reduction in the swelling, but more exudate. Dec. 9, little swelling of the optic disc, some exudate present. Exudate glistening white.

Jan. 4, 1911, vision in each eye 20/20, exudate disappearing. Owing to the infrequency of my seeing him and the progressive

pathological changes in the eye, I am unable to express a definite opinion as to the duration of the effect of the diagnostic dose upon the sight. It probably lasted longer than in case 1, which was about four days, as normal vision in this case did not return until about Jan. 4—twenty-one days.

In this case there were no subjective symptoms during the time of the great reduction in sight. The general reaction to the diagnostic dose was somewhat typical—marked headache and backache, chill malaise, temperature 100.2 thirty-six hours after the injection.

From Dec. 9 to Jan. 4 I did not see the patient, owing to an illness which kept him in the house and was called grippe by the attending physician, the symptoms being of a bronchial nature, the highest temperature being 103. He lost fourteen pounds.

Owing to this illness and the imperfect taking of the records I was unable to use the temperature record as an aid in the dosage to full extent. He has been getting injections of the tuberculin every other day since Nov. 21, with the omission of three days during his illness, gradually increasing the dose up to 1/100 mg.

At the present time, Jan. 11, he is feeling well, gaining in weight.

The therapeutic value of the new tuberculin in this case is not yet clear. However, the first case, I think, does fully demonstrate it. I might be permitted to reiterate what is now common knowledge, that the danger in using tuberculin is in over-dosage and that we cannot rely upon any one clinical symptom as giving us sufficient evidence to guide us. Above normal temperature is of but little aid to us practically, for the reason that we do not approach a dosage that will produce temperature. A more delicate temperature test, I think, is subnormal temperature produced by the tuberculin and especially in the morning. The more important clinical symptoms to observe are weight, appetite, mental state, physical energy.

It would appear that the *sight reaction, which occurs simultaneously with the systematic reaction, begins about seventeen hours or a little later after the injection and lasts for three days or longer.*

I have had no experience in the use of diagnostic doses or tuberculin in brain tumor, and therefore would hesitate to suggest that it be used in tuberculoma with intra cranial pressure symptoms.

103 State St.

AN UNUSUAL CASE OF FOREIGN BODY IN THE UPPER EYELID.

BY ROBERT SCOTT LAMB, M. D.

WASHINGTON, D. C.

One of the most interesting and misleading cases I ever saw was that of T. T., colored, aged forty years, barber, who came to me April 11, 1905, suffering from a condition of the left eye which to all appearances was a trachoma with pannus, or possibly a kerato-iritis with vascularization of the cornea, of such long standing as to have caused the beefy looking inflammation of the upper lid.

He gave a history of having gotten a piece of hair in the eye and of having it removed at one of the hospitals, since when the eye had been better and worse, but always somewhat inflamed.

After bleaching with cocaine and adrenalin as much as possible a thorough search failed to discover any sign of any foreign substance, and, as he was of that class among whose many members syphilis is very prevalent, I came to the conclusion he probably had the manifestations in the eye, even though he denied the knowledge of having been infected. I treated him accordingly internally with Donovan's solution, externally mercury rubs and locally with yellow oxide and atropine sulphate 1 percent, having him use smoked glasses.

In the course of a few days he was better, but complained now of a more marked scratching sensation, whereupon I took cocaine and adrenalin, bleached as best I could, and searched carefully and long, finally locating in one of the fleshy masses upon the upper lid, near its center at the upper border of the cartilage, a small black point. The surrounding flesh was removed and a wiry hair one-fourth inch long was pulled out. It had been embedded in the lid at right angles to its surface, and so whenever the granulating flesh grew smaller the hair presented itself and began again the process of scratching the cornea. I removed the granulating mass, and by May 29 he was entirely well. I gave him +0.50 S. for near work.

Since then I have seen him on the street repeatedly and know that he has never had another symptom simulating either kerato-iritis with pannus or trachoma with pannus.

Reports of Societies

COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF NOVEMBER 19, 1910, IN DENVER.

DR. W. C. BANE, PRESIDING.

Corneal Injuries From Blasting.

Dr. C. E. Walker showed a man whose corneas had been peppered by particles of rock, while blasting eighteen months before. In the right eye an artificial pupil was made opposite a fairly clear portion of the cornea, one year later; the lens being clear, apparently, but the globe was now soft. A staphyloma of the left cornea had developed. This was opened, and through the incision a cataractous lens was removed.

In Dr. Walker's second case the explosion had occurred nine months previous. One eye was a shrunken stump; the other presented a peppered cornea, dense leucoma below and anterior synechia.

Discussion.—Dr. Jackson said that the cornea was surprisingly tolerant to injury, remaining clear between the injured spots. In Dr. Walker's second case he would do an optical iridectomy.

Dr. Spencer thought there was probably a retinal detachment in this case, and that vision would thereby be lessened, if the iridectomy proved successful.

Dr. Patterson also questioned the benefit of iridectomy; but Drs. Bane, Hilliard, Conant and Libby advocated the operation.

Ptosis.

Dr. Jackson presented a case of congenital bilateral ptosis in a young man operated on six years before by Mott's method, isolating the middle half of the tendon of the superior rectus and attaching it to the tarsus. The operation was done on both eyes at the same time. In addition to gaining control over the lids, which remained as good as shortly after the operation, the patient had quite lost the wrinkling of the brow and the habit of keeping the head thrown back, which alone had enabled him to see prior to the operation. Dr. Jackson also reported a case of bilateral ptosis due to progressive ophthalmoplegia externa, which had been increasing for twenty years. The eyes retained some power of movement outward and downward; there was good mobility of the pupils, and fair accommodation for the patient's age, 42 years.

Discussion.—In answer to questions by various members Dr. Jackson stated that he did not over correct the deformity at the time of operation, that the silk sutures were passed through the central portion of the tarsal cartilage and were not disturbed until cut, that the eye was dressed daily, and that the correction of the ptosis was established at the end of three months.

Detachment of the Retina.

Dr. Libby presented a man of thirty-eight, who had first consulted him six months before on account of monocular blindness of sudden onset and four month's duration. A segment of the retina representing the lower quadrant, but not extending over three disk diameters from the nerve head, was completely detached. The apex of the detachment overlapped half of the optic disk. There were moderate vitreous opacities. The anterior segment of the globe was normal, as was the fellow eye. The general health was good, and syphilis was excluded. The refraction was low hyperopia. Subretinal growth was excluded. Iodide of potassium was given in increasing doses, saline cathartics, pilocarpin sweats, and Turkish baths; but the condition had remained unchanged for the three months of treatment, and the three months following. Operative interference was declined, first and last. The provisional prognosis made at the first examination was confirmed by the end result of this unfortunate case, which for want of a better designation must be classed as idiopathic retinal detachment.

Discussion.—Dr. Sisson stated that statistics showed the results of surgical as compared with medical treatment of detachment of the retina were about equal.

Dr. Friedmann suggested decompression.

Cataract With Optic Atrophy.

Dr. A. C. H. Friedmann reported vision of 5/5 after cataract extraction and subsequent discission, in one eye. Five months later he removed a mature cataract from the other eye; after which he found optic atrophy of that eye.

Posterior Polar Cataract.

Dr. F. R. Spencer reported a woman of twenty-four whose vision, refractive media and fundus oculi had been found normal five years before; but now vision was 15/20 with correction of 1.50 D. compound hyperopic astigmatism, and there was much accommodative asthenopia, with severe headache. Each showed posterior stellate polar cataract. The kidneys and blood pressure

were normal. The patient was taking complete rest from her work as a stenographer, and was under the general care of her family physician.

Discussion.—Dr. Ringle advocated a radical change in her manner of living. Drs. Bane, Walker and Patterson spoke on this same line.

Dr. Libby suggested, in addition, dionin locally, iodides and eliminants internally.

Lid Edema.

Dr. W. A. Sedwick reported a young woman whose lids swelled intermittently, accompanied by redness of the globes. Sinus involvement had not been found by two observers.

Discussion.—Dr. Spencer suggested angioneurotic edema.

Dr. Bane remarked that we all see cases in which we cannot find the cause.

Significance of Subconjunctival Hemorrhage.

Dr. Spencer read the following note: "Those of you who were at the meeting of this society in Dr. Black's office last year will remember the discussion concerning the significance of subconjunctival hemorrhage. The consensus of opinion was that it is often one of the early symptoms of high arterial tension. Shortly after the meeting I found the following in Haab's text book on "External Diseases of the Eye," page 145:

"It has been observed especially in persons who are subjects of marked arteriosclerosis, with or without nephritis, and who usually die of apoplexy: hence the phenomenon is significant from a diagnostic point of view."

Discussion.—Dr. Libby thought it best always to give the patient or his physician some warning as to the prognosis in cases of non traumatic subconjunctival hemorrhages, especially if recurring, and to suggest taking the blood pressure and making urinalyses.

Dr. Ringle considered that high pressure with subconjunctival eschymosis foreboded evil; and mentioned a case in point.

GEORGE F. LIBBY, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

(Meeting of December 17, 1919, in Denver.)

Dr. D. H. Coover, Presiding.

Retrobulbar Neuritis.

Dr. Coover showed a rather stout girl, aged 10 years, who had

recently noticed sudden loss of vision in the left eye. The previous history was indefinite and the etiology obscure. Sinus involvement was not found, but the posterior ethmoidal cells and the sphenoidal sinus were suspected. The specific gravity of the urine was 1.008, and albumin, sugar and indican were excluded. Peripheral perception of light was admitted one day, but denied the next. The other eye was normal. The case was shown because of its indefiniteness, and to ask an expression of opinion as to causation and treatment.

DISCUSSION. Dr. Walker thought these cases very obstinate, and had found internal medication and local treatment by electricity of no benefit. He would consider deep orbital injections of salt solutions or mercury.

Dr. Keeper had seen two similar cases cured under the use of K. I. and the high frequency current.

Dr. Jackson suggested the possibility of a hypophyseal growth.

Dr. Patterson had noticed dry crusts in the left nostril, and thought the posterior ethmoidal cells or the sphenoidal sinus were very likely involved. In this, as in every case of unilateral optic neuritis, he would remove the anterior end of the middle turbinal and examine the ethmoidal cells. There might be a walled off cell.

Dr. Davis mentioned Bernheimer's practice of emptying the posterior ethmoidal cells in unilateral optic neuritis, if poison could be excluded, and noticed that most of the cases so examined showed mucocele.

Dr. Black considered the prognosis good if ethmoidal trouble was found and relieved; otherwise the prospect was poor.

Dr. Crisp suggested shrinking the nasal mucous membrane in the hope that the sinuses would then drain freely.

Dr. F. C. Todd considered suction an aid, and that the finding of pus would clear up the etiology. He thought the crusts in the left nostril suggested pus in the cells, and would remove the middle turbinate, believing that operation justified in cases of impaired vision of obscure origin.

The consensus of opinion was that the case was one of retrobulbar neuritis, possibly of toxic origin, but probably due to ethmoiditis.

Cyst of Iris.

Dr. C. E. Walker presented a woman of about 70, from whose right eye he had removed a cataract twelve years before.

At the same time he excised a serous cyst of the upper quadrant of the iris. The vision after extraction was 20/20. Five years later another serous cyst of the iris developed, to the nasal side of, and just below the other. It has grown slowly, and was about 2 mm. in diameter and of a pearly white appearance. The other eye showed a senile cataract.

DISCUSSION. Drs. Hess and Coover had each seen a similar case, of slow growth, and not operated on while under their observation.

Cysts of Bulbar Conjunctiva.

Dr. Coover also presented an adult who, the day before, had shown five round cysts of the conjunctiva, 1 to 5 mm. in diameter, situated over the attachment of the external rectus and well forward toward the corneal limbus. The cysts were now scarcely visible.

DISCUSSION. Dr. Bane had removed single cysts of the conjunctiva, in adults, by incision.

Dr. Black encountered a conjunctival cyst, 2x5 mm., on the nasal side. It would empty itself and refill, intermittently. Incision was followed by obliteration.

Dr. Walker had seen several cysts cured spontaneously.

Dr. Friedmann considered these cysts tropho-neurotic, and had often noted them in adult Russian Jews.

Dr. Libby mentioned the obliteration of a small cyst of the outer fourth of the palpebral conjunctiva of the lower lid, by incision and application of nitric acid.

Dr. Sisson believed these cysts to be caused by a perverted flow of lymph.

Dr. Strickler had observed obliteration following incision.

Localized Arterio-Sclerosis in Orbital Apex.

Dr. Frank C. Todd, of Minneapolis, reported a unique case of great extravasation following the severing of the optic nerve and its vessels in enucleating the blind eye of a young adult. Two years before, blindness of that eye had occurred from thrombosis of the central vein. The central vessels showed subsequent to the enucleation, calcareous degeneration.

Spasmodic Miosis.

Dr. Neeper reported two cases of failure to get mydriasis from atropin in phlyctenular conditions with photophobia. In one case both eyes were affected, while in the other the condition was monocular.

DISCUSSION. Dr. Black thought the failure due to washing out of the atropin by the excess of tears and to spasm of the sphincter of the iris.

Drs. Friedman and Coover advocated holding the lids open, closing the puncta and applying powered atropin.

Steel In the Orbit.

Dr. Black reported injury to the eye of a man using a sledge and steel cutter. The following day a penetrating wound of the lid was found on examination, intense conjunctival chemosis, dilated pupil (atropin had been used), absence of fundus reflex, and blindness. By means of X-Ray plates Dr. G. H. Stover located the foreign body $\frac{3}{4}$ -inch posterior to the globe, and toward the nasal wall of the orbit, and judged to be $1\frac{1}{2} \times 1\frac{1}{2} \times 3-16$ of an inch in size. The use of the magnet was unsuccessful. Dr. Black believed that a piece of steel had passed through the eye and lodged in the orbit, and that unless infection should occur around it, the eye ball would probably be saved. Therefore he counselled delay.

DISCUSSION. Dr. Ringle had extracted with a magnet, through the wound of entrance, a large piece of steel that had passed through the globe and into the apex of the orbit.

GEORGE F. LIBBY, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING MONDAY, DECEMBER 5, 1910.

SAMUEL D. RISLEY, M. D., CHAIRMAN.

Dr. D. Forrest Harbridge presented a case of acute monocular retrobulbar neuritis which he believed had been caused by a localized periostitis and due to the effects of sudden changes in atmospheric temperature to which the patient was subjected in the course of his daily business. There were the usual fundus appearances of neuritis. The patient's vision when first examined equalled but $\frac{1}{2}/60$; the peripheral field was only shadowy, and there was a large absolute scotoma. Under careful systemic and hygienic treatment, within a month the visual acuity equalled $\frac{6}{5}$, and the fields were normal.

Dr. William Zentmayer exhibited several patients, among them a young girl showing the beneficial effects of tuberculin treatment of scleratizing keratitis. A man who had received a gunshot injury showing traumatic chloiboma with lenticular remains; and a boy with regressing trachomatous conjunctivitis.

Dr. Zentmayer presented a patient upon whom he had operated for the relief of complete cicatricial ectropion of the lower lid, the result of a burn with hot metal. A dense scar surrounded the inner canthus and extended downwards and outwards along the orbital margin almost to the outer canthus. This scar formed a narrow prominent ridge limiting the ectropionized lid. In the operation the scar surrounding the inner canthus was removed together with a vertically placed triangle of skin the upper angle of which was placed considerably higher than the canthus. By bringing the sides of this triangle together the inner fourth of the lid was elevated. The scar tissue beneath the lid was then excised, and the entire raw surface was covered with a Wollfe-graft; the conjunctival margin and the lower border receiving four stitches. As but two weeks only have elapsed since the operation the result may not be permanent, yet the present appearance seems almost perfect.

Dr. Zeigler in commenting on Dr. Zentmayer's cases presented several patients of his own. The first was a man who had had the symptoms of tubercular keratitis for 18 years past. He had been given fifteen injections of Koch's tuberculin since May 10. The corneas are now quite clear and there are no signs of active inflammation.

Another was a young man who had had interstitial keratitis several years ago, but whose corneas are now actively tubercular. He has been in bed. The vaccine reaction temperature is now 102. Dr. Zeigler is inclined to believe that there is some lens matters present in Dr. Zentmayer's man, and he showed a patient of his own who had been injured somewhat exactly as Zentmayer's, on whom he had made a V-shaped iridotomy with excellent results.

Dr. S. D. Risley was much interested in Dr. Ziefiler's remarks upon the treatment of his cases and especially in the temperature sheets shown. His method of using tuberculin is the same as he himself has employed and which he has already reported before this society. He had been told that marked reactions with high temperature were dangerous, yet in a considerable number of cases Risley had seen no harmful results but only a rapid improvement in the ocular disease as well as in the general health. He had not in any case found it necessary to give more than five injections, however, and in each case the reaction had been progressively less after each injection until the last produced but little or no rise in temperature.

He would suggest the stopping of the tuberculin injections in Dr. Zeigler's last case, and, notwithstanding the fact that at first the thyroid extract had been administered without result, he would return to the administration of it.

Dr. Zentmayer asked Dr. Zeigler upon what in his first case, the diagnosis was based. Whether it was upon the clinical appearances, or on the reaction to the tuberculin? In the second case because of the high febrile reaction following the injection he believed it safer to reduce the dose to a point a little below that required to produce the reaction.

Dr. Ziegler said he regarded the reactions, both local and general as sufficient to prove the case to be tubercular, especially so when the symptoms are relieved. He uses Koch's old tuberculin, from 1 $\frac{1}{2}$ m. to 2 m. In his first case 13 injections were given before the reactions were lost.

Dr. Risley said in commenting on Dr. Zentmayer's case of traumatized coloboma with capsular opacity he was not sure that the lens is present, but is inclined to think it is not; but had become absorbed as a result of the traumatism which has left only the opaque mass entangled in the gray capsule attached to the apex of the coloboma. If this view is correct he thought the best operative procedure would be to incise the cornea with a keratome and insert the blades of de Wecker's scissors and divide the opaque mass and iris directly upward to a point midway between the periphery of the iris and the border of the coloboma. The procedure suggested by Dr. Zentmayer is more conservative, however, for the presence or absence of the lens could be demonstrated, and if it were not successful other methods could be tried later.

Dr. S. D. Risley presented for study the case of a school boy aged 14 whose eye-lids exhibited redundant masses, in the characteristic stage of acute trachoma when he applied at the clinic on October 24th, 1910. He was admitted to the isolation ward of the hospital and on the same day subjected to the expression-operation with the Knapp's roller-forceps, great care being exercised to empty each granule. The after treatment had been the use of cold compresses for a few hours after the operation; a soothing eye wash, and the application of tannin and iodine locally as a precautionary measure. He thought great care should be exercised so as not to use too great force in stripping out the contents of the trachoma granules, and thereby avoid tearing the conjunctiva. The boy was

discharged from the hospital after two weeks, and was allowed to return to school four weeks later. He is now shown at the end of six weeks as an example of complete cure. The conjunctiva is healthy, is free from scars and presents no evidences of there ever having been trachoma. Dr. Risley said he had presented the case to show that in acute trachoma, certainly, we need not give a prognosis of "two years of treatment only to be followed by cicatricial contractions, long absence from school, isolation, etc."

Dr. Zentmayer said that from his recent experience, in the management of some 40 cases of trachoma occurring in a school, the disease had proved quite tractable when it was treated in its incipency. These cases represented several types of the affection though some may have been only follicular conjunctivitis. Those in whom the diagnosis was doubtful showed exuberant pale dry follicles involving the palpebral conjunctiva and the retrotarsal fold. The majority of the cases, however, presented deep seated isolated pale yellowish granules. Less than 50% of the cases were treated by roller-expression. In all silver nitrate and boroglycoride were applied alternately. At the end of 6 months all but 10 or 12 were practically cured.

Dr. S. D. Risley exhibited for the second time after a month's interval, two patients, one having partial optic atrophy accompanying general cardio-vascular disease, who, when exhibited last month, had had spells of vertigo, and suffered from headache and insomnia. The blood pressure then was at 220 mg. in systole, while now it has receded to 180 mg. together with a closely corresponding recession in the pulse rate which remained so for two weeks. Risley stated that under the daily administration of Sulphate of Magnesia and Nitro-glycerine the pulse rate had not diminished, yet the blood pressure had fallen almost suddenly to 180 mg. Not only was the pulse rapid, it was subject to frequent intermissions, the patient felt extremely weak also; and her condition seemed critical.

At this juncture, under tonics, rest in bed and a more generous diet, the blood pressure had remained, with slight fluctuations, between 180 and 190 mg., and the pulse rate had fallen to from 70 to 80 beats per minute, with few intermissions. This condition has remained constant for two weeks and while there has been no improvement in the acuity of her vision, the fullness of the veins in the eye has diminished and she is very much better and it is thought she may be safely discharged from the hospital. Risley believes, however, that it is sometimes dangerous to interfere too vigorously

with the arterial tension in such patients as this since the tension is probably one of the manifestations of an effort to maintain compensation.

The other patient was a girl 17 years of age with a growth upon the border of the eye-lid. The edge was indurated and there was a large apparently granulating mass projecting from its surface which extended into the region of the outer canthus and well into the fornix. A portion of the mass was removed for examination, but as the laboratory report was delayed and because the mass, in the following week increased in size rapidly, with serious involvement of the cornea, the entire mass was curetted away. Following this operation, the granulations threatening to recur at a few points, they were cauterized with trichloroacetic acid. The thickened mass extending to the fornix has entirely disappeared and the curetted surface, having been cicatrized, the disease is believed to be cured. This case is interesting because of the fact that the laboratory diagnosis, received after the curettment had been accomplished, was that it was a case of adeno-sarcoma, which is proved by the specimens exhibited to the Society and by the report of the curator, Dr. Goldberg, which is briefly as follows:

The specimen exhibits throughout its entirety the signs of a small round celled adenosarcomatous infiltration in process of active growth, together with characteristic new-blood vessel formation.

Dr. J. Norman Risley exhibited a case of xerosis of the cornea of over twelve years standing, in a man of twenty-two years of age. The previous history is vague except that the patient had had a plastic operation for entropion, probably, when a small child, which has produced a condition of traumatic lagophthalmos, and there is nothing in the general condition of the patient or the previous history to suggest other than local conditions as the etiological factor. The cornea is now dry, lusterless and semi-opaque, through which, however, the patient is able to distinguish large objects. The bulbar conjunctiva also is dry, lusterless and is firmly adherent to the underlying tissues and has a waxy appearance. There are many bands of adhesion between the bulbar and tarsal conjunctivæ in the upper and lower cul-de-sac, as though the entropion had been caused by severe inflammation. By traction it is possible, however, to close the palpebral fissure. Instillations twice daily of 5% solution of dionin and the frequent use of liquid petrolatum, with the closure of the eye lids, by means of a pressure bandage, have after a week effected a slight improvement.

Dr. Zentmayer recalled a case of epithelial xerosis which he had seen in an infant, about 15 years ago. The entire bulbar conjunctiva had a waxy frothy appearance. The surface shedded aqueous solutions much as waxed paper would; and finally the epithelium of the cornea became hazy. The baby had a digestive trouble, which Dr. Starr stated was due to the absence of the pancreatic secretion, and it died in a few months.

Dr. Ziegler reported that the case believed to have been a ciliary neoplasm exhibited at the last meeting had proved to be an encysted abscess which ruptured and a necrotic area remains though the globe is not yet involved.

Dr. Chance showed a drawing of the anterior segment of an eyeball which he had enucleated because of active inflammation, caused undoubtedly from irritation produced by the pigment in a tattooed cornea. The patient was a young Russian girl whose eye had been "painted" a number of years ago to cover a disfigured white spot on the cornea, a sequel of a purulent conjunctivitis probably in early childhood. The eye had remained quiet until recent months. The drawing showed how extraordinarily the pigment had been dispersed over the cornea, although there were evidences that the tattooing had been confined to a central leukoma. In addition to corneal changes there was a ciliary staphyloma. It was well that the globe had been enucleated, for it was learned later that the patient suffered from irritation in the fellow eye. The section of the globe showed extensive degeneration of all the structures and marked inflammatory results in the remains of the ciliary region. It is hoped that a report of the histological findings can be given at the next meeting of the society.

BURTON CHANCE, Secretary.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting November 18, 1910. Dr. William Zentmayer, Chairman, presiding.

Avulsion of the Eyeball.

Dr. Mary Buchanan (by invitation) presented an eye that had been gouged out by an insane patient, aged fifty-one years, suffering from involutional melancholia. For several weeks the patient had made repeated requests to have her eyes removed and her head cut off. One night the patient succeeded in enucleating

her own left eye, and in answer to an attendant, who inquired concerning her eye, she replied, "There it is on the window-sill." Dr. Buchanan thought the specimen was remarkable for the neat way in which the muscles and optic nerve were severed close to the eyeball, and stated that, with the exception of a grooved abrasion of the conjunctival surface of the upper lid, the orbital tissues were in fair condition after the crude operation. No infection followed the removal of the eye.

Dr. Zentmayer said that Dr. Buchanan's case was exceptional in that avulsion was complete. More commonly the globe is still attached by fibers of one of the muscles, usually, he believed, of the inferior rectus.

Acetylene Gas Lamp.

Dr. G. Oram Ring exhibited a portable acetylene surgical gas lamp. Its weight is about 15 ounces and height $3\frac{1}{2}$ inches; candle power, about 30. Expense of running it is said to be less than one cent an hour. It has a rod or arm attachment, making it possible to utilize it on a bed or chair. It emits a pure white light, without flickering, and from the standpoint of the ophthalmologist is considered most desirable as an addition to one's surgical bag for house or hospital ward use. The chimney or tube is brass nickerled, with reflector.

The anterior segment of the eyeball can be perfectly illuminated—the fundus examination made without difficulty—and notwithstanding the brilliant whiteness of the flame, the fundus tint is not at all abnormally bleached. It can be readily used for retinoscopic purposes.

A gas-cock is attached, so that the size of the flame can be perfectly regulated. The gas (C_2H_2) is generated from carbide crystals, and the lamp has been subjected to almost every possible test without evidencing any explosive tendency.

Papilloma of the Conjunctiva.

Dr. Krauss reported a case of *Papilloma of the Conjunctiva*, one of the rarest benign growths of this membrane. It occurred in a man aged forty-seven years. The growth, which arose from the middle of the upper lid near the fornix of the left eye, was the size of a large cherry, deep red in color, and covered with numerous papillae. According to the patient's story, it had been present for fifteen years, but began to grow more rapidly after an

attack of iritis five years ago, assuming the large proportions only for the past few weeks.

Excision was made as complete as possible to prevent recurrence. The microscopic findings were those of a papilloma. There was a central mass of fibrous connective tissue with numerous papillary projections, some of digitate shape, others thick and lobose, separated by clefts, into which the surface epithelium extended. There were several large sebaceous glands embedded in the connective tissue, which in places showed cystic changes with degeneration and necrosis of the neighboring cells of the gland. In a few instances, active proliferation, with extensions of masses of these cells into the surrounding stroma, had occurred, and in two of these instances there were appearances of "cell nests," as in squamous epithelioma.

Bloodvessel Floating in Vireous, Associated with Coloboma of Chorioid.

Dr. Crampton presented the case-history of a healthy girl, aged nine years, having a partial coloboma of the iris and chorioid of the right eye, associated with a fine patulous bloodvessel, which was seen to pass forward over the floor of the coloboma from the periphery of the fundus. Before reaching the apex of the coloboma the vessel separated from the retina and, forming a shepherd's crook, floated freely in the vitreous and terminated in a minute mass of pale gray tissue. The origin of the vessel was lost in the peripheral portion of the coloboma. The vitreous was clear and showed no remnants of the hyaloid artery. The father was a high myope, but otherwise the family history was negative. The patient gave no history of injury or disease. Vision was 3-60 in each eye. Under duboisine, a $+ 4.25$ Sph. = $+ .75$ Cyl. Ax. 75 and a $+ 5.00$ Sph. = $+ .75$ Cyl. Ax. 165 gave a vision in right and left eye, respectively, of 6-15 and 6-9.

A Self-Contained Electric Ophthalmoscope.

Dr. Crampton demonstrated a magazine ophthalmoscope handle containing a two-cell dry battery, which, when used in connection with a tungsten lamp, gives a light of marked brilliancy. The battery handle can also be used with a retinoscope or a transilluminator tip, lamps of suitable power being adapted to each instrument.

The battery, in the form of a round rod, is $\frac{7}{8}$ of an inch in diameter and less than 4 inches long. Like all dry batteries,

they slowly deteriorate whether in use or not. Although the life of the battery seems disproportionate to its size, a little care in turning off the lamp when not in use will well repay one for the trouble.

Dr. L. F. Appleman stated that he had had occasion to use the ophthalmoscope which Dr. Crampton presented, but found difficulty in seeing the details of the fundus clearly owing to a reflex produced by the cone of brilliant light against the central portion of the mirror, and asked whether some means could not be devised whereby the light could be uniformly distributed over the surface of the mirror.

Dr. Zentmayer asked Dr. Crampton what was the life of the battery.

In reply to Drs. Appleman and Zentmayer, who spoke of the annoying reflections due to the light striking the upper edge of the sight hole, seen in all electric ophthalmoscopes having a central aperture in the mirror, Dr. Crampton, while admitting the imperfection, said he knew of no way of preventing it other than by using a slotted mirror, which, however, has the disadvantage of giving an unequally illuminated field.¹

Rodent Ulcer of the Cornea, with Histological Demonstration.

Dr. G. E. de Schweinitz described two cases of rodent ulcer of the cornea, with removal of the eyeball in one instance, the subject of the lesion having been a colored man, aged about forty-five years. The disease appeared to have started in an injury of the left eye from a piece of wood, and gradually all of the lesions characteristic of rodent ulcer of the cornea developed. This began at the upper edge of the cornea and gradually crept across, involving more than half of this membrane. The ulcer was separated from the healthy portion of the cornea by a gray opaque rim, deeply undermined. There was also a deep undermining of the conjunctival edge of the ulcer. The patient was first seen five months after the disease began, when the ulcer had already involved more than one-half of the corneal surface. All manner of treatment was tried, notably frequent applications of the actual cautery, and although there was no marked progression, there was also practically no improvement, and as the patient was greatly

¹ Since the meeting Dr. Crampton has reported that in an improved form of the instrument, in which the upper side of the sight hole is shaded by a fine metal grid protruding through the opening, the reflections appear to have been overcome entirely, and by means of a sliding sleeve, the distance from filament to mirror being variable at will, a graduated light is obtainable.

depressed and unable to work, he requested the removal of the eye. This was done, and the lesions found were as follows:

The cornea, as a whole, was depressed, the middle of it lying well down upon the lens and iris. The corneal epithelium was irregularly thickened, and except for a couple of islands of stratified squamous epithelium beneath its surface, presented no abnormalities. In the region of the pupil the epithelium had become invaginated beneath a mass of fungated connective tissue elements arranged in lamellations. A prominent feature of the specimen was the dense infiltration of the cornea on either side of this thinned area and of the sclera, slightly beyond the corneoscleral junction, by fairly large round connective-tissue cells. The ciliary body and iris had not shared in the disease. The lens, iris and ciliary body, retina and nerve were normal. The appearances of the sections closely resembled those pictured by Lister in his description of the microscopic lesions of this disease. Numerous cultures taken from the ulcer prior to enucleation of the eyeball were either negative or else contained only the ordinary cocci, and nothing resembling Andrade's bacilli was discovered.

The second case occurred in a woman, aged seventy-eight years, of feeble constitution, and presented all of the characteristics of the one which has just been described. In this instance the usual local applications and cauterants were negative in their results. At least, the progression of the ulcer was not stopped, although it was extremely slow, and at the time the patient came under observation had been in existence for many months. In addition to the corneal lesions in this patient there was distinct iritis. The only application which appeared to do any good, and which afforded the patient considerable relief, was that preparation which has been described by Dr. Arthur E. Ewing as "a useful and mild caustic," and which consists of resorcin, salicylic acid, carbolic acid, oil of lavender, oil of bergamot, and alcohol, the formula for which may be found in the *American Journal of Ophthalmology*, May, 1910. The case is still under observation, and therefore the ultimate results cannot be stated.¹

Dr. S. D. Risley thought it fortunate that cases of rodent ulcer of the cornea were so rare. He could not recall but two cases occurring in his experience, both of which were at the Wills Hospital, and in aged colored people. In one of these no treatment

¹ Since this was written the eye has been enucleated, as the patient could no longer endure the pain and depression.

proved of any help, and the man passed from observation. In the second, an old and feeble colored woman, after other methods of treatment had failed he carefully curetted the ulcer throughout its extent and cauterized it with saturated solution of trichloroacetic acid, carrying the drug thoroughly under the overhanging borders of the ulcer. In this case it proved curative. The ulcer healed, leaving a white cicatricial band. The same treatment, however, had been useless in the other case. Dr. Risley thought we should use the galvanocautery at the limbus of the cornea with great caution. A white heat should never be employed. He had seen three cases in consultation in which a lack of caution, he thought, had been rapidly followed by violent attacks of iridocyclitis, resulting in loss of the eyeball.

Dr. Ziegler confirmed the value of Ewing's solution in these sluggish lesions of the cornea, as well as in neoplasms. He had found, however, that cicatrization was greatly promoted by applying formalin, 1 per cent, solution, immediately after applying Ewing's solution.

Dr. Zentmayer stated that his experience with rodent ulcer was limited to one case, seen in a farmer, aged sixty-four years. The ulcer had all of the characteristics of this type. It was complicated by an iritis, and the pain was severe. The course of the case seemed self-limited, as none of the long list of remedies which were tried appeared to have the least beneficial influence. The actual cautery was used repeatedly and its failure to arrest the progress of the ulcer was particularly disappointing, as Fuchs states that before the use of this method these ulcers involved the whole cornea, but since the introduction of it the disease could be arrested in its incipency. Carbolic acid, trichloroacetic acid, and Bier's hyperemic method were all repeatedly tried, and failed. The only remaining clear part of the cornea was a small area below. V. = counting fingers at 1 m.

Epibulbar Papilloma Apparently Originating from an Injury.

Dr. G. E. de Schweinitz briefly described the case history of an epibulbar papilloma which he had removed from the right eye of a man aged sixty-five years, as follows: The growth, somewhat crescentic in shape, was situated along the inner border of the corneoscleral junction of the right eye, extending from the center of the upper border around the inner margin of the center of the lower border. Directly in its middle, on a line with the internal

dectus muscle, it was depressed, owing to the presence of a small pterygium, in such a manner that the growth appeared to arise in two halves, extending from the upper and lower border of this pterygium. It was attached by a broad base, which encroached for 3 mm. on the corneal surface, and 5 or 6 mm. on the bulbar conjunctiva, was smooth on its surface, and of a reddish-yellow color, a number of injected conjunctival vessels surrounding its margins. The growth was excised from its bed and the conjunctiva, loosened on each side of it, drawn over to fill the gap produced by the dissection. Healing was uneventful, and the patient left the hospital at the end of a week with a perfectly cured eye, which in other respects was normal.

Sections of the growth sent by Dr. Saxon in Dr. de Schweinitz's laboratory, were exhibited and had the following characteristics: Externally, there is a layer of stratified squamous epithelium arranged in a papilliform manner, while between the papilla there is a rather dense connective tissue growth. (This layer of epithelium surrounds an area consisting for the greater part of dilated capillaries and arterioles filled with blood cells. The remainder of the growth is composed of myxomatous and connective tissue. The epithelial elements are in no sense infiltrated and have a definite relation to the basement membrane. Many of the cells show distinct chromatin filaments in their nuclei, and in one spot there is an appearance of pearly body formation.

Dr. de Schweinitz briefly referred to papillomas of the cornea, especially to those which had started at the limbus and invaded the cornea. He also pointed out that papilloma of the conjunctiva, as in his case, usually occurred in the neighborhood of the caruncle and the plica, and that such papillomas were apt to recur after removal, and although they grow outward without invasion of the deeper tissues, it is a well-known fact that they sometimes become malignant. His patient maintained with great positiveness that the growth had begun to appear after his eye had been injured by coming in contact with the fin of a fish, which struck him violently in the corner of the eye, and occasioned primarily a sharp traumatic conjunctivitis.

Bilateral Partial Tenotomy, with a Greek Cross Test-Object for Use During Operation.

S. Lewis Ziegler stated that partial tenotomy had become a well-recognized procedure in cases where prisms had failed to give

relief. It was originated by von Graefe (1861), revived by Abadie (1880), perfected by Stevens (1883), simplified by Ziegler (1891), elaborated by Verhoeff (1893), and modified by Todd (1907).

Dr. Ziegler said that some surgeons preferred complete tenotomy with suture, but this exposed the patient to the danger of a faulty reattachment of the muscle, of an axial rotation of the eyeball, or a marked overcorrection of the error from slipping of the sutures. The ultimate object of partial tenotomy, as applied to low-grade errors, was to secure orthophoria through an operation that would permit us to obtain minutely graduated effects without the danger of producing torsion of the globe. This could be best accomplished through a bilateral partial tenotomy, with the preservation of a central fasciculus that could be thinned down until a measurement of orthophoria was secured.

Operative Technique. The conjunctiva is incised, the tendon made tense with the hook, and each lateral third of the tendon completely divided. The remaining or central third is then gradually clipped across the top until relaxation is felt. The speculum is removed and the result measured by the Graefe test. If necessary, the clipping is repeated until orthophoria is secured. If the error is large, the correction should be divided between the two eyes. An effect ranging from $\frac{1}{2}^{\circ}$ to 8° may be secured with proper care. By the employment of this method the motility of the eyeball is undisturbed, the traction power of the muscle is retained, its insertion is unchanged, and vertical tilting of the axis is avoided.

The use of the illuminated Greek cross test-object will enable the operator to make reliable measurements by the Graefe method in spite of the corneal haze resulting from blood and cocaine. There is complete dissociation of the two images and the patient can accurately line up the vertical deviation by the horizontal arms of the cross, or the horizontal deviation by the vertical arms of the cross.

Dr. de Schweinitz, commenting on Dr. Ziegler's important and interesting communication, asked whether, in his investigations of von Graefe's relationship to partial tenotomy, he had ever found a statement by von Graefe retracting his recommendation of the operation which he had once advised. Dr. de Schweinitz asked this question because he remembered Herman Knapp's statement, who, referring to partial tenotomies, had said: "Von Graefe tried them, as I did also, at the beginning of my practice, but when, in conversation, I told von Graefe of these operations, he answered: 'You

will not do them very long.' This seemed to Dr. Schweinitz to indicate that von Graefe himself has become dissatisfied with the operation of partial tenotomy.

Dr. S. D. Risley congratulated Dr. Ziegler upon the ingenious technique of the operation he had described so clearly. All of the attempts he had himself made to secure results by partial tenotomy had failed. He was inclined to the belief that Dr. Ziegler's success in his procedure was due to the thorough detachment of the tendon from the underlying sclera by the rending of the attaching connective-tissue fibers with the strabismus hook. This permitted the stretching backward of the fibers of the tendon. After testing many methods, he had finally adopted the method of carefully cutting the entire tendon from its attachment or insertion without the use of a strabismus hook. He then controlled the degree of retraction of the tendon from its line of original attachment by the extent of release afforded by cautiously snipping the underlying fibers which bind its under surface to the sclera. But little if any result is secured by a simple division of the tendon.

Dr. Ziegler, replying to the query of Dr. de Schweinitz, said that there was no evidence in von Graefe's writings that he had recanted his views as to partial tenotomy. He could not have known of Stevens' work, in 1883, since he died in 1871. His repeated reference to this subject shows how important he considered it. Dr. Ziegler believes that partial tenotomy is a most valuable procedure and that the bilateral incision with a central fasciculus will prove to be the safest and most accurate method.

Subsiding Disseminated Chorioiditis of Luetic Origin.

Dr. T. B. Holloway cited the case history of a male, aged forty-nine years, who had been under treatment at the University Hospital since October, 1909. The patient gave a history of having contracted an initial lesion about January, 1909, that was followed by the customary secondary symptoms. He first detected an impairment of vision about July 1, but he did not come under ocular observation until October. At this time the vision of the right eye was 4-22, while that of the left eye was reduced to the counting of fingers. There was no injection of either eye, but each cornea showed a fine pin-point deposit on its posterior layer. In each eye there were numerous vitreous opacities, preventing a satisfactory view of the fundus details. It could be made out, however, that the disk edges were blurred and that the vessels on the disk

were contracted. He was given injections and sweats with the internal administration of potassium iodide. The vision gradually improved until on November 1, 1910, when his condition was as follows:

The vision of the right eye was 6-12; of the left, 6-22. Each disk was atrophic, having a yellowish tint; the retinal vessels were contracted, especially the arteries; the maculae showed a granular retinochorioiditis; in the periphery of each eye were a number of chorioidal lesions, many of which were situated beneath the retinal veins, and in several places these lesions were linked together, resembling a string of beads. Dr. Holloway referred to the patient whose case history had been reported by Mr. Nettleship in 1909, where chorioidal foci had been observed to occur in chains and follow exactly the course of the retinal veins. In the patient presented by Dr. Holloway there had been at first a large central scotoma in the left eye and a paracentral scotoma in the right eye, whereas the fields taken on November 1, 1910, show that the form fields were practically normal, the color fields contracted; in the right eye there was a reversal of the red and blue fields, while in the left eye the blue field exceeded that of the red only in the temporal field. There still persisted a vague relative scotoma directly at fixation.

Tuberculosis of the Anterior Segment of the Globe.

Dr. Zentmayer exhibited the patient who was shown before the Section last spring with tuberculosis of the anterior segment of the globe. At that time there was present a severe uveitis with pupillary occlusion. Areas of infiltration in the cornea, the result of extension of scleral inflammation; hypotonus and V. reduced to finger counting. Under tuberculin treatment the cornea has cleared greatly, the pupillary membrane has absorbed. Tn. and V.=5-20.

T. B. HOLLOWAY, M. D.,

Clerk.

Meeting December 16, 1910. Dr. William Zentmayer, Chairman, presiding.

Detached Retina with Rupture Along Region of Ora-Serrata Caused by Vomiting.

Dr. Crampton exhibited a highly myopic man, aged thirty-nine years, who gave no history of traumatism other than that due to severe vomiting caused by digestive disturbances. He sometimes vomited until he "saw stars."

The previous and present family history is negative and there is a plausible denial of specific disease. Eight months ago after vomiting he noticed a floating spot on the upper temporal quadrant of his right glass, and soon the entire visual field of the right eye began to undulate. The vision failed rapidly and is now reduced to that of moving objects, while the other eye, which aside from the presence of vitreous opacities and a myopia of about 14. D. is practically normal, has a corrected vision of $\frac{6}{21}$. In the right eye there is a floating detachment of a considerable area of the retina, situated in the anterior lower portion of the fundus. With the pupil fully dilated, the retina is seen to be ruptured for some distance along the region of the ora-serrata and one can readily see beneath it as under a tent.

Lymphangioma of the Conjunctiva.

Dr. G. E. de Schweinitz described the histological characteristics of a small epibulbar growth which he had removed from the left eye of a man, aged forty-eight years, situated down and slightly out from the cornea on the bulbar expansion of the conjunctiva, but unattached to the cornea itself. It was red in color, 18 mm. in length, and 5 to 6 mm. in breadth. Covered by and connected with the conjunctiva, it was readily dissected from a lightly attached base, and was composed of a tissue which in some spots resembled myxomatous tissue, but for the most part was made up of a loose connective tissue, with large cavernous dilatations, somewhat resembling vessels, and which it was believed represented dilatations of lymphatics. These spaces contained absolutely no blood, nor was there the least trace of blood in the tissue outside of them. Dr. de Schweinitz intends to make some additional studies of this growth, which he did not feel had been with entire accuracy classified, and to present them at a future meeting.

Chancre of the Eyelid.

Dr. William T. Shoemaker showed a case of *Chancre of the Eyelid* and called attention to the difficulty of diagnosis of such lesions in the early stages, and consequently the importance of care in the handling of all cases, suspicious or not, as a safeguard against syphilis insontium. The case shown was a married woman, aged thirty years. The infection was probably immediate from her husband. The lesion showed first at the inner angle of the upper lid of the right eye and looked exactly like a hordeolum. It later spread to the lower lid and involved the entire inner angle. The preauricular and submaxillary glands on the same side were

considerably enlarged, and the swollen preauricular gland was noticed by the patient before the eyelid lesion. There was little or no ocular disturbance beyond the immediate area of the chancre. The *Spirochaeta pallida* was found and demonstrated by Drs. Uhle and Mackinney.

Dr. Shoemaker referred to the essay and statistics of J. Duncan Bulkley on "Syphilis in the Innocent." From this author it would seem that *extra-genital* chancres probably form 10 per cent or more of the whole number, and of extra-genital lesions, over 4 per cent are of the eyelids and conjunctiva.

It has been shown that the spirochaeta lives under favorable circumstances but a few hours (perhaps four or five), a very important factor in protecting us from the widest kind of a distribution of innocent syphilis.

Dr. A. A. Uhle stated that extragenital chancre was of rather frequent occurrence. During the past six weeks he had observed five patients with extragenital chancres, three of whom were exhibited. Dr. Shoemaker's patient was the first patient he had seen with a chancre of the eyelid. A healthy-looking, granulating, indurated ulcer that does not respond to usual treatment, should always be regarded with suspicion. In the early stages, before induration was present, it was difficult to make a clinical diagnosis, and it was at this time that physicians were most likely to be infected. While it was formerly our practice to await the appearance of secondary manifestations, to make a positive diagnosis, this no longer is necessary. The *Spirochaeta pallida* can readily be demonstrated by the ultra microscope, and in many instances by staining methods, at any stage prior to the characteristic changes, which make its clinical diagnosis possible. In the Wassermann reaction we possess also a valuable means of early diagnosis; in our experience it has been uniformly positive after the third week. The ultra microscope is the most positive means of making an early diagnosis. The preparation of the slide for examination, the description of the organism and its demonstration, he reserved for Dr. Mackinney.

Dr. W. Mackinney emphasized what Dr. Uhle had said relative to the value of the ultra microscope in the early diagnosis of syphilis. In his experience it has been uniformly positive, not only in chancres but in untreated secondary lesions, such as mucous patches, condylomata, macules, papules, etc. This method recommends itself particularly because of its easy application, as but

a few minutes are required for the detection of the *Spirochæta pallida*, when the material for examination is properly obtained. A smear made from the surface of the ulcer, gives usually negative results but when the ulcer is rubbed clean with a piece of dry gauze and the serum is obtained by firmly compressing the ulcer, without obtaining too much blood, the spirochæta are readily demonstrated. The length of this organism is generally two or three times the diameter of a red blood corpuscle, it is extremely thin and delicate, having numerous spirals tightly wound and uniform throughout, which readily distinguishes it from other spiral organisms such as the refringens, dentium and buccal varieties. The convolutions vary in number from fifteen to twenty-six; the organism under the microscope has seventeen distinct spirals. The preparation exhibited was made from the chancre of the eyelid exhibited this evening by Dr. Shoemaker. It can be observed that it has a motility which is very characteristic, moving rapidly upon its long axis, at times bending sharply at various angles, but moving very slowly across the field, remaining in the field for a long time. They preserve their motility for several hours in a preparation of this kind.

Later History of a Previously Reported Chancre of the Conjunctiva.

Dr. G. E. de Schweinitz, after referring to a chancre of the ocular conjunctiva which he had reported to the Section twelve years ago, briefly detailed the subsequent history of the case, namely, that after six months of treatment the original lesion had disappeared, that the entire upper half of the cornea showed a typical pannus, almost exactly as it occurs in granular lids. Scattered between the thickly produced vessels the corneal epithelium was hazy, but neither vessel nor haze appeared below the pupil space, and vision was only $\frac{6}{60}$. For a month pannus increased in spite of active treatment, then gradually subsided and the patient disappeared from observation, to return again at the expiration of seven years, when after the correction of a mixed astigmatism vision rose to $\frac{6}{12}$ and the only remnant of the previous corneal lesions were a few small irregular opacities, and one or two chalky-looking scales. This satisfactory result continues at the present time.

Dr. de Schweinitz referred to the well-known fact that in a certain number of instances a keratitis in acquired syphilis in all particulars resembling a true parenchymatous or interstitial

keratitis has followed lid or conjunctival chancres, and thought that in recording the sequels of chancre of the conjunctiva we should add to these corneal lesions which may develop one, which depends upon the formation of new blood-vessels between the corneal epithelium and Bowman's membrane, in all respects conforming to the pannus of granular lids.

Transitory Decrease in the Static Refraction of the Eye in Diabetes.

Dr. William Zentmayer read a paper upon "Transitory Decrease in the Static Refraction of the Eye in Diabetes." The patient was a woman, aged fifty-eight years, who had been under treatment for glycosuria for three weeks by Dr. H. M. Fussell. She was first seen by Dr. Zentmayer October 4, 1909. There had been rapid loss of vision for ten days so that she could see better at a distance with her reading glass than with the naked eye. Glasses had been worn for six years for nearwork only.

O. D., V.=6/Lx; O. S., V.=6/Lx. Visual fields practically normal. T. of O. S.+?

Ophthalmoscopic examination: Media clear, marked degree of retinal arteriosclerosis changes; confined to the vessels.

O. D., + 2.50 = + 0.25 cx 165° 5/v; O. S. + 2.50 = + 0.50 cx 15° 5/v 2.50 added Type 0.37 pp. 25 cm. On the following day the cylinder was rejected, but v. was the same.

October 26 there was no change in refraction, v., or fundus.

November 8, O. D. + 1.25 6/v pt.; O. S. = 1.25 = 6/v pt. Accommodation unchanged.

January 17, 10 O. D. + 0.50 6 iv pt.; O. S. + 0.70 6/iv pt. Accommodation unchanged.

The percentage of sugar had been 5 per cent, but was lessening at the time vision failed and had been absent from the urine for two days previous to October 4, 1909.

Dr. Zentmayer stated that the theories which had been advanced to explain this change were: alteration in the index of refraction of the lens, the vitreous or the aqueous; alteration in the curvature of the cornea; dehydration of the vitreous and paresis of accommodation whereby latent H. becomes manifest.

Three conditions are known to occur in diabetes which have a bearing upon these theories: Transitory M.; paresis of accommodation and cataract. The fact that in several cases the previous refraction of the eye was known, that in several there was no paresis of accommodation present, that the other dioptric changes

which occur in diabetes have to do with the lens indicate that in this condition also, the change is in the lens—probably, as suggested by Van der Brough, Grimsdale, and Randall, an increase in the index of refraction of the cortical layer whereby the entire lens becomes more homogeneous.

T. B. HOLLOWAY, M. D., Clerk.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held December 19, 1910, with the President, Dr. W. A. Fisher, in the Chair.

A Case of So-Called Bottle-Maker's Cataract.

Dr. Robert Von der Heydt reported the case of a baker who, after years of exposure to the heat of the oven, developed what has been described in the literature as a case of bottle-maker's cataract.

DISCUSSION.—Dr. H. S. Gradle said that Birch-Hirschfeld had come to the conclusion that bottle-maker's cataract was caused by the ultra-violet rays and that heat had nothing at all to do with it.

Dr. Von der Heydt called attention to the fact that Birch-Hirschfeld's experiments were conducted on rabbits and that heat was eliminated. The eyes were exposed to light only. The cataract was developed in one minute. In bottle-maker's cataract the eye is exposed to heat for many years; Parsons' patient was exposed for twenty-four years. Other experimenters have produced retinitis and conjunctivitis by irritation, but in these cases light had nothing to do with it.

Transplantation of Skin for Pterygium.

Dr. Clark W. Hawley presented a case illustrating the transplantation of a piece of skin on the eyeball to prevent the return of a pterygium. The pterygium is first dissected from the cornea, being careful to stop where the conjunctiva and the cornea unite. Then, by slightly undermining the pterygium, it will recede, leaving the sclera exposed. From behind the ear a very thin piece of skin is shaved off and trimmed while on the razor to the desired size. This piece of skin must be just as thin as it is possible to cut it, otherwise there will be trouble afterwards. The piece is then floated from the razor directly upon the uncovered sclera. Then two stitches are passed through at each posterior cornu of the graft, upwards and backwards, anchoring it to the conjunctiva

so that the pterygium cannot push it forward on to the uncovered corneal wound. This is the most difficult part of the operation, but so far has been necessary, but I believe I have solved the problem in another way, which will eliminate these two stitches, which will make the operation exceedingly easy, whereas now it is rather difficult. In time the graft disappears, the cornea has time to regenerate itself and become absolutely transparent.

Divergent Strabismus Cured by Tendon Tucking.

Dr. H. W. Woodruff, Joliet, reported the case of a man, 28 years old, who had a divergent strabismus of 65 degrees which was cured by tucking of both internal recti muscles with tenotomies of both external recti muscles. Before operation the left eye showed a divergence of 65 degrees. After operation there was only 15 degrees of divergence, but the patient was annoyed by diplopia. Tucking of the right internus and tenotomy of the right externus resulted in binocular single vision with some exophoria.

DISCUSSION.—Dr. Clark W. Hawley has done a simple tenotomy of the external rectus which secured binocular vision. The patient had had divergent strabismus as long as she could remember. With a little care he obtained fusion as well.

Dr. W. H. Wilder asked how much folding had to be done to get such a good result, and whether he had to go back of the muscle fibre themselves to secure enough of a fold.

Dr. Woodruff (closing) said that he has been doing this operation for about eight years, but he cannot tell accurately just the degree of result he can obtain. In the case reported he went back as far as he could on the external rectus because of the extreme degree of divergence, but he could not state the number of millimeters. He used the Worth suture except that he did not include the conjunctiva or capsule. That is the particularly commendable feature of the Worth operation. There is no slipping up on the fibers.

Dr. W. A. Fisher asked whether it would not be a good plan to insert the stitches as far back as possible and then not pull up so hard on them?

Dr. Woodruff, in a moderate degree of strabismus, would do the tucking first and then the tenotomy, partial or complete, as might be indicated, in convergent strabismus a slight under effect and in divergent strabismus a slight over effect. He regulates this by the tenotomy on the opposing muscle.

Some Observations on the Use of the Tonometer.

Dr. Walter Parker, Ann Arbor, Michigan, read a paper on the above subject.

DISCUSSION.—Dr. E. V. L. Brown has been using the Schiotz instrument for several years and would be lost without it. He has found a number of tensions in the neighborhood of one hundred and one tension as low as five. The highest normal tension was 27: the lowest 12. He called attention to an article by Schirmer on the use of the tonometer in iridocyclitis, in which he states that low tension is a constant symptom of this disease. Even after the disappearance of all symptoms the tension will often remain low for as long a period as months. He recently had a case of papular syphilide with iritis in which the question arose as to whether the ciliary body was involved. The extension in this eye was 5, and is still low, although the patient has excellent vision. It is a case of recurring iridocyclitis.

Dr. H. S. Gradle said that in the instrument devised by his father the stylet does not fall out, which is an essential objection to the Schiotz instrument. It necessitates sterilization of the stylet and often the plating is damaged so that the stylet is roughened and may cause an injury of the cornea. The relationship between tension and blood pressure, he said, is worked out by Kramer. He examined the blood pressure in all his eye cases and found that in every case it was low when the tension was high.

Dr. M. N. Black, Milwaukee, asked whether the objection to the instruments stated by Dr. Parker, abrading the cornea, could not be overcome by applying cocaine solution or an oily collyrium to the eye?

Dr. W. H. Wilder said that a well standardized and convenient tonometer would be a very valuable aid in this work. The Schiotz instrument seems to be more accurate than any other. There are so many problems that might be taken up in connection with this. For instance, the effect on the eye with increased tension: whether we could quickly decrease the tension by means of massage, which is frequently employed successfully in cases of acute glaucoma. He thought that such an instrument as a tonometer would amply repay one for time and money spent if it will accurately and quickly determine the degree of tension, more so than can be done by the simpler method of estimating tension with the tactile sense. There is so much difference of opinion in the degree of tension observed. Weeks, of New York, claims to

detect with the finger a three-fourths of one tension. He thought it required much experience to become expert in taking the tension of an eye. He feared that when this mechanical means became perfected there would be a neglect to develop the tactile sense for determining tension of the eye.

Dr. Parker said that a single application of cocaine for a minute would enable one to make an examination without any difficulty. When there is much spasm of the orbicularis he would not persist in the use of the instrument. He thought, however, that free use should be made of any mechanical apparatus which would enable one to do better work.

Dr. Wilder inquired whether Dr. Parker had observed any increase in tension following the instillation of cocaine. It has been stated, he said, that it is dangerous to use cocaine in eyes that have a tendency to glaucoma.

Dr. Parker (closing) has not had any experience in this direction. He has noticed a difference in the tension of the eyeball after the tonometer has been used for some time, but he has not had any experience with the instrument after the use of drugs.

A Simple Operation for Cataract. An Illustrated Report of the Operation as Performed at the Jullundur Clinic.

Dr. Derrick T. Vail, Cincinnati (by invitation), presented his paper, which was a descriptive and illustrated article of eighty-one pages, written during a visit to Smith's Clinic at Jullundur, Punjab, India, in September, October and November, 1909. The article was in book form in the nature of a special souvenir edition, a copy of which was presented to each member present. He said Smith uses no instruments of precision in diagnosing all kinds of new cases which come to his clinic for operation. He relies solely on the senses of sight and touch, acting on the principle that there is no disease of the eye which does not express itself objectively, and that a keen, accurate and well-informed surgeon can diagnose operable cataracts by his unaided senses.

Post-operative infection among over a thousand cases was so rarely present (two cases) that Vail could only attribute its rare occurrence to Smith's manner of preparing the field for operation. The "Jullundur speculum" is introduced and the lids held forcibly away from the ball at the same time the brow and tissues of the orbit above the eye are forcibly retracted by the fingers of the unoccupied hand, thus exposing the entire conjunctival sac for domeb-

ing with 1:2000 bichloride solution, which is sent in the conjunctival sac with gravity force in a half-inch stream.

The incision is purely corneal, being begun in the exact horizontal meridian at the limbus. The edge of the knife is held at an angle of 20° to 30° in relation to the plane of the iris. In one-third of the cases the cut is made with one forward sweep of the knife; in two-thirds of the cases completed with a return stroke, cutting as nearly vertically to the corneal layer as possible, and coming out two or three millimeters below the upper limbus. The iridectomy is done by pressing the iris up in the incision by external manipulation with the lower blade of the iris forceps and it is cut with ordinary iris scissors. A small iridectomy is always attempted.

The assistant now holds the upper lid away from the ball on Smith's lid hook held in the first finger and thumb of his right hand. With the extended fingers of the same hand the eyebrow is forcibly retracted to guard against the patient squeezing his eye. The lower lid is held with the flexed thumb of his left hand.

The operator now expresses the lens, using the bulbous end of Smith's lens hook applied to one spot midway between the lower margin of the pupil and the lower periphery of the iris, making deep pressure back toward the optic nerve and shifting the pressure as indicated by the behavior of the lens. In about one-fourth of the cases the lens turns within the eye and the lower edge ascends to come out of the incision first. This is favored by the operator making traction with his hook away from the incision or toward the patient's feet. As soon as the lens is about to escape through the incision, gentle upward manipulation is used to tuck the cornea behind it and the lens is then gently raked out of the wound by means of the hollow of the hook.

In two-thirds of the cases the lens starts to come upright. The operator will favor its upright delivery by following it up and at the same time tucking the cornea behind it. The iris is replaced at once by the iris repositor, the end of which is made to glide along under the scleral shelf of the wound between the cut apron of iris and the cornea. The whole operation is usually done in less than five minutes' time. There is a minimum of traumatism and instrumentation.

The results in Jullundur were surprisingly beautiful and uniform, after-complications being the great exception.

Dr. Vail devoted his time while there to learning every minute

detail of Smith's technic and he offered no improvements, modifications or suggestions, taking it for granted that the profession desired to know exactly how Smith operates in his own clinic.

Dr. D. W. Greene, Dayton, Ohio, complimented Dr. Vail on his paper and particularly on the illustrations which he had made. He knew that his book had been delayed about three years because Lieut. Col. Smith did not have a man competent to illustrate his operation until Dr. Vail arrived. Smith has frequently described the operation, but could not get it illustrated, therefore it has been imperfectly understood. In relation to the Jullundur speculum, Dr. Greene does not know who devised it. Smith does not claim it; they were made for us by a native in the Bazaar and with the two hooks and spatula made of *coin silver* cost about \$2.50 in India. The set cost \$10.00 in this country. As to the douche with which the eye is flushed, reference to Colonel Herbert's book on "Cataract Extraction" will show that he speaks favorably of the value of bichloride in 1:2000 solution as an antiseptic. In India 75 per cent of the people have trachoma, so that when the eye is flushed with this solution, germ growth is inhibited long enough for the section to heal. If it heals promptly, there is no infection.

In about 1,200 operations, during our visit at Jullundur, there were only four cases of infection. I have never equaled this record and I doubt very much whether it has been equaled in America. In Moorfield's Hospital, in London, I have been informed by one of our members this evening, that there were three cases of infection in one hundred operations while there.

Dr. Vail, he said, spoke of Major Smith's stepping to the left side of the patient when he operates on the left eye; he does that because he believes in giving the patient the benefit of his best hand. Smith says no matter how ambidextrous a man may be, he is not equally skillful with each hand. There is no section in the world to compare with the Jullundur section, for intra capsular delivery in persons under sixty-five years of age. But being a corneal section he thought that in the case of patients seventy years old and over it is better to make the enlarged circular marginal section of De Wecker. The advantage of that section is that it is nearer the vascular circulation of the limbus, although it is not so well located for delivering the lens as it is in the Jullundur corneal section.

One thing not mentioned by Dr. Vail, he said, is this: Major Smith picks up the eye with a special forceps. It is broad and

has three teeth on one blade and four on the other. With this he takes a firm hold of the eye close to the sclero-corneal margin below and pulls the eye if deeply set, right out of the socket. That deepens the anterior chamber, and permits of passing the knife through easily without causing any leakage of the aqueous or permitting the iris to fall over the knife. Of course, Major Smith is an expert at making this section. Out of perhaps three hundred sections seen by Dr. Greene, there was only one bad one, and that in a case of contracted fornix caused by trachoma. Of course, these Indians are not so old as they look: a man of forty will have the appearance of a man of eighty. The Jullundur incision, he said, is best suited for younger persons. It is better for those under sixty than for those over sixty. Of course, he said, the operation is new, and few men are capable of criticizing it, because only a few have seen it done, and learned it at first hands. It is not only the cataract operation, but it is a good one for incipient and immature cataracts, and will always have a place among cataract operations.

The tendency of the operation is to make the pupil higher and broader than is desirable from a cosmetic point of view. I believe that there are three causes for this tendency to high pupils:

1st. The natural tendency of the uncut portion of the iris to contract centripetally and draw upward.

2d. A certain amount of paresis of the muscles of the iris from pressure on its lower third in delivery.

3d. Loss of vitreous always cause a high and broad pupil.

Dr. Wilder inquired where Major Smith gets his knives.

Dr. Vail said that they are made by Weis, of London. Major Smith prefers a knife that has been sharpened and resharpened until it is pronounced dangerous by the maker. The knife is then merely a steel sliver. It is a very short-bladed knife and very thin. It would easily be broken if used as we use our knives in cataract operations. By holding it very lightly Smith makes a sweeping incision, going in and coming right out.

WILLIS O. NANCE, Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the Medical Society's rooms, Chandos street, London, on Thursday, January 26th, 1911, Dr. G. A. Berry, president, in the chair.

Before proceeding to the agenda, Dr. Thomas Buzzard was elected, by ballot, an honorary member of the Society.

Mr. E. A. Dorrell showed a drawing of unusual appearances of the iris in congenital syphilis; also a paracentesis needle for use in preparing vaccines from the aqueous.

Mr. R. R. James exhibited a case of pedunculated tumor of the conjunctiva. Dr. Angus McNab showed a case of false projection; and Mr. Hosford brought forward six cases illustrating congenital dislocation of the lens.

Mr. J. Herbert Fisher read a paper entitled "The Pituitary Body and Lesions of the Optic Chiasma. After alluding to cases which from time to time had sporadically been reported in the Transactions of the Society, Mr. Fisher dealt shortly with the development, structural anatomy, and function of the hypophysis cerebri. Reference was made to the recognition and elucidation of acromegaly by Marie, in 1886 and subsequent years, and Frohlich's train of symptoms known as "dystrophia adiposo-genitalis" was sketched. Recent experimental work on the pituitary body and its function, by Pavlesco and Harvey Cushing was narrated. The association between the hypophysis cerebri and other ductless glands was reviewed. Cushing deduced from his extensive work on the subject that acromegaly and gigantism were the result of hypersecretion of the anterior lobe of the pituitary gland, while Frohlich's train of symptoms was the result of hypersecretion. Mixed cases were explained on this theory. The author then detailed nine cases of pituitary body and chiasma lesion which he had personally observed, over a long period of time in most instances. The cases provided examples of acromegaly and of Frohlich's syndrome in complete and in partial manifestations; one complete case showed that this train of symptoms might develop in the adult as well as in the child. The cases showed the early liability to sexual disturbance and impotence in pituitary body lesions. Primary atrophy, not papilloedema was the ophthalmoscopic phenomenon in all the cases. Some examples of very practical benefit by treatment with thyroid extract or pituitary extract were afforded. In the later cases, special extract of the anterior pituitary lobe only was being tried, with some encouraging signs of benefit. In every case charts of the field of vision were exhibited, and the necessity of perimetry for the diagnosis was insisted on. The additional value of X-rays in demonstrating enlargement and destruction of the sella turcica was well exemplified by the skiagram of the patients.

The president, in initiating the discussion on the paper, invited members to narrate any experience they might have had of such cases, and particularly if they had had any in which treatment had been beneficial; there were probably many who had seen cases of bi-temporal hemianopia due to acromegaly. An interesting point was as to the proportion of cases of acromegaly in which eye symptoms were present. Did the cases showing bi-temporal hemianopia begin with changes in the pituitary body, or were they cases in which, owing to changes subsequently taking place in the sella tureica there were pressure effects on the decussating fibres which ran to the ventral surface of the chiasma? Mr. J. B. Lawford said he had reported a case very similar to those of Mr. Fisher. The patient was a man aged 36, and was under observation 21 months. He came with his left eye nearly blind, there having been a history of progressive loss of sight on that side. The vision in the right eye at that time was 6/12. He was a thin man but healthy looking, and the loss of sight was his only complaint. There was no definite history of syphilis, although he had a sore on the penis seven years previously, but without secondary symptoms. Smell, the fifth nerve and other senses were normal; there was no headache, no sexual incapacity, and no signs of tabes. There was optic atrophy well-marked in the left eye, and pallor of the right disc. On account of the history of a chancre, he was put on antisyphilitic treatment for a short time, but no improvement occurred, and three months later he had thyroid treatment. At that date the vision in the good eye had been reduced from 6/12 to 6/24 and 18 J., and he had lost a large part of the temporal field in the right eye. After treatment by thyroid, the central vision rose from 6/24 to 6/6, and from 18 J. to 1 J. X-ray examination of the base of the skull was negative. Later there was failure of sight, and he was again taken into hospital and put on to pituitary extract alternating with thyroid extract; he did not then know of the special anterior lobe extract. The vision steadily failed, and when last seen that of the right eye had fallen to preception of hand movements. The man remained free from other symptoms of disease. Mr. R. W. Doyne expressed regret that Mr. Fisher did not ascertain the field for color in those cases. In some cases showing hemianopic loss there was a normal white field. Ten or twelve years ago he published particulars of one case of acromegaly in which the field for white light was normal, but the whole of the upper sector was lost for color. In that case, which went

from bad to worse, he could tell beforehand how it was going by the loss of color which occurred first. Mr. Jameson Evans narrated the case of a patient who suffered from hemianopia but no other symptom. That went on for ten years, and then he developed some other symptoms, which led to an operation for pituitary growth, but it was not successful. He thought that in some of the cases cryptorchism was present. He treated one case with thyroid extract, and it lost weight. Pituitary extract resulted only in an increased secretion of urine. Cases of acromegaly seemed to do well on mixed treatment by thyroid extract and pituitary extract. Mr. Richardson Cross said the cases seen were those in which there was pressure on the chiasma. He had a young woman in whom the menstrual function was very imperfect, and whose mental attitude was unsatisfactory. He operated upon her for squint, and she had typical symptoms of acromegaly. She had been treated unsuccessfully with thyroid extract and pituitary extract, and he showed charts of the fields of vision. He also showed some charts of a patient who had pressure on the chiasma, but in whom there was no acromegaly. Mr. Hewkley asked whether there was hyperaesthesia of the remaining sentient portion of the retina. In one case when the person passed by a street lamp in a suburb the light would apparently be very dazzling to his eyes. Mr. Fisher replied that the cases which he had reported were not acromegalic, with the exception of the first one. He felt sure that in many instances there was enlargement or growth in the region of, if not developing in the pituitary body and pressing on the chiasma. He regretted he did not investigate the color fields, owing to the stress of out-patient work. But he would hesitate to accept Mr. Doyne's observations that early contraction or loss of the temporal portion of the field for color must be an inevitable guide for prognosis, though if that were so it would be a great guide to the future.

C. DEVEREUX MARSHALL.

A school for defectives is about to be opened by the City Board of Health of Indianapolis. All children with defective eyesight will be placed in this school, where they may receive proper attention without interfering with the progress of the brighter children.

Notes and News.

Personals and items of interest should be sent to Dr. Frank Brawley, 72 Madison street Chicago.

Dr. J. Galezowski has taken over the private practice of Dr. George J. Bull of Paris, who died recently.

Dr. Charles H. May has been appointed Consulting Ophthalmologist on the Fourth Division of Bellevue Hospital, New York.

Dr. James S. Hopkins, former assistant ophthalmic surgeon to the New York Ophthalmic and Aural Institute, died December 19th, aged 51.

Dr. George F. Emery of Ottawa, Canada, died at his home November 23d of intestinal disease, aged 43.

At the annual meeting of the Marinette and Menominee Medical Society, Dr. Calvin R. Elwood of Menominee, was elected president.

At a recent meeting of the College of Physicians of Philadelphia, Dr. Geo. E. de Schweinitz was elected president and Dr. Wm. T. Shoemaker, councilor.

A lecture on the care of the eyes will be given in Hosack Hall, New York City, as part of a campaign of the Public Health Educational Committee of the American Medical Association.

Dr. Julius Pohlman, an ophthalmologist of Buffalo, died in that city December 6th, aged 62. Dr. Pohlman was well known as a physiologist and was at one time general secretary of the German Society of Naturalists.

Dr. Charles J. Kipp of Newark, N. J., of national repute as an ophthalmologist, died recently at his home in Newark of pneumonia, aged 73. Dr. Kipp was born in Germany and after graduation at Physicians and Surgeons, New York, he served in various army departments in the Civil War, and engaged in practice in Nashville and Indianapolis before locating in Newark.

The annual meeting and banquet of the Chicago Ophthalmological Society was held at the Chicago Automobile Club, January 16th.

Dr. H. W. Woodruff was elected president, Dr. E. V. L. Brown was re-elected vice-president, Dr. Willis O. Nance was re-elected secretary-treasurer, and Dr. Thos. A. Woodruff was elected councilor.

Dr. Bulson of Fort Wayne, Ind.; Dr. Bartholomew of South Bend, Ind.; Dr. Young of Burlington, Iowa, were among the out-of-town members present.

Dr. F. Park Lewis of Buffalo was elected chairman of the Board of Directors of the recently inaugurated National Association for the Prevention of Blindness and the Conservation of Eyesight. The purpose of this society is not only the conservation of eyesight, but to aid in the promotion of social purity, prevention of infant mortality and the safeguarding of industrial occupations.

It is the intention to co-operate with various other societies interested in such work.

Ophthalmologists who are planning to attend the Los Angeles session of the American Medical Association will be interested in the announcement that two Pullman coaches have been reserved for their exclusive use in going from Chicago to Los Angeles by the Santa Fe route. These coaches are on the regular California Limited, leaving Chicago Thursday evening, June 22nd, and arriving in Los Angeles Monday afternoon of the week of the session. The time en route includes a full day's stop at the Grand Canon. Those desiring reservations are requested to write the chairman of the Section on Ophthalmology, Dr. Albert E. Bulson, Jr., 219 West Wayne St., Fort Wayne, Indiana.

The Minnesota Academy of Ophthalmology and Oto-Laryngology was organized in Minneapolis February 8th. The attendance and the enthusiasm shown in this meeting were very gratifying and the future promises well. A constitution was adopted and officers were elected. The meetings will be held monthly, alternately in Minneapolis and St. Paul, preceded by a dinner. The active membership provides for membership of any physician interested in this line of work throughout the state, and it is expected that many Ophthalmologists and Laryngologists outside of the Twin Cities will become members. The following officers were elected: President, Dr. Howard McL. Morton, Minneapolis; first vice-president,

Dr. John F. Fulton, St. Paul; second vice-president, Dr. Thos. McDavitt, St. Paul; secretary and treasurer, Dr. Elmer H. Parker, Minneapolis. Council—Dr. Frank E. Burch, St. Paul; Dr. Henry A. Beaudaux, St. Paul; Dr. William N. Porteous, Minneapolis; Dr. Charles M. Spratt, Minneapolis; Dr. Frank C. Todd, Minneapolis.

Dr. Clarence Heath of Chicago, well known as one of the younger ophthalmologists of that city, died January 15th of pneumonia. At the annual meeting of the Chicago Ophthalmological Society a committee was appointed upon a motion by Dr. Brown Pusey, to draft resolutions expressing the bereavement of the society. President Wm. A. Fisher appointed Drs. Brown Pusey, Casey Wood and Albert Andrews, who presented the following resolutions:

Whereas, Our respected confrere, Dr. Clarence Heath, has been suddenly and prematurely removed from us,

RESOLVED, That we, the officers and members of the Chicago Ophthalmological Society, desiring to place on record our appreciation not only of the late Dr. Heath's many brilliant professional qualities, but of his manly bearing and his cheery, generous disposition, order that this resolution be entered in the minutes of the society and a copy be forwarded to the relatives of the deceased.

WM. A. FISHER, President.

WILLIS O. NANCE, Secretary.

Chicago Ophthalmological Society.

The Fourth International Congress for the Improvement of the Lot of the Blind, will be held in Cairo from the 20th to the 25th of February, 1911. The organizing committee has provided entertainment for the visitors while in Cairo and substantial reductions have been obtained from the railways, steamship lines and hotels.

The organizing committee submit the following questions for discussion:

(1) What definition should be given of "blindness," and what is the degree of vision below which an individual should be considered as blind?

(2) What are the best measures to adopt to avoid the spread of the forms of ophthalmia which may lead to blindness?

(3) Has the use of Esperanto as a universal language for the

blind actually been put into practice, and if so what practical results have been obtained?

(4) As stenography is useful to the blind, what is the best method, applicable to all languages, of teaching it to the blind?

(5) What are the best trades and professions to teach to the blind as a means of gaining their livelihood?

(6) What are the best games and bodily exercises to be introduced into schools for the blind?

(7) Can improvements be made in the Braille method as at present practiced?

(8) Could not the blind be employed in telegraph offices and telephone exchanges?

The Peoria City Medical Society recently adopted the following resolutions regarding optometry:

Be It Resolved, That the members of the Peoria City Medical Society are unalterably opposed to the proposed "optometry" bill, which is to be introduced at the coming session of the state legislature.

That the granting of a license by the state to any person to practice "optometry," who has had little or no training in the fitting of glasses—a few weeks at the most—who knows absolutely nothing as to the normal or diseased conditions of the eye and who would be examined by a board composed of their own members—none of whom have ever had any medical training whatsoever—is contrary to the welfare of the people of the state of Illinois in general, a large majority of whom, in case the bill becomes a law, could not distinguish, if both are granted licenses by the state, between the qualifications of the regularly trained physician and those of the so-called "optometrist."

That no member of this society shall support this proposed legislation in any manner whatsoever, nor sign any petition in support of same, and if such has already occurred, that such name shall be immediately withdrawn.

That this society does not seek to stop opticians from selling glasses nor the right of individuals to have their eyes examined by anyone, but this society does object to the granting of any license by the state to non-medical persons for the fitting of glasses or the giving of advice on medical subjects.

E. W. OLIVER, Secretary.

—*Illinois Medical Journal*.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Rich'd S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
3 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) E. K. Findlay (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) Francis Lane (Rush) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) *Wm. H. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) W. A. Gardner (E.E.N.T.) E. J. Gardner (E.E.N.T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Ills. Med.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honore Streets. Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue. P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2481 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX

CHICAGO, MARCH, 1911

NO. 3, NEW SERIES

ACUTE RETROBULBAR NEURITIS CAUSED BY AN INTESTINAL TOXAEMIA.

F. PHINIZY CALHOUN, A. B., M. D.

ATLANTA, GA.

Much has been written recently on the subject of Inducanuria and its significance, and we find our laboratory men yet ununited in their views as to its true interpretation. Clinicians of general medicine relate cases, obscure in every detail, in which there is a severe intestinal toxæmia, and under appropriate treatment they recover. Men in special lines of work, the Orthopedist, the Rhinologist and the Ophthalmologist recognizing the importance of this toxæmia, and the many diseases and ailments associated with this form of poison, see their cases improve if not recover under a suitable diet.

Clinically, there appears to be an intimate association between an albuminous putrefaction, an intestinal toxæmia, an inducanuria or what ever it might be called, and certain diseases or manifestations, and I wish to report such a case causing an acute Retrobulbar Neuritis.

Master C. H., age twelve, a school boy, has always enjoyed good health; measles and mumps being his only sickness. His appetite is good, and he eats few sweets, fruits a great deal, excessively of meats and chews food fairly well, but his mother considers him a rapid eater.

For the past year the patient has complained of pain in his eyes, which commences after he has read a great deal, and in turn is followed after one or two hours with headaches, occasionally nausea and vomiting. The headaches are relieved as soon as he ceases reading and lies down.

His vision in each eye when first seen, February 7, 1910, was 20/200. Atropia mydriasis was used and by retinoscopy, hyperopia plus .75 S was found. There were no changes in the fundi, except perhaps some pallor of the optic discs.

The patient was referred to Dr. J. E. Paullin, of the State

Board of Health, for laboratory examination, and by his report, the blood was found perfectly normal except for some anemia.

The faeces showed positive evidence of undigested food.

The urine, twenty-four hour specimen, total amount 480 C. C. Sp. Gr. 1024; Reaction acid; Albumin trace; Sugar none; Urea 16.8; Phosphates 2.61; Chlorides 8.02; Indican and Skatol considerably increased; Microscopically there were a few granular casts.

The physical examination was negative.

The patient was placed upon a buttermilk diet absolutely and was given Basham's mixture. Glasses plus .50 S were ordered to be worn constantly.

On February 26th, vision in each eye without glasses was 20/40. March 19th, 20/20. May 11th, 20/15.

Subsequent examinations of his urine when made, within two weeks after he was placed upon this strict diet, were practically normal.

The Nephritis in his case was undoubtedly due to the chemical irritation and the derivatives of putrefaction absorbed from the intestines circulating in the blood, produced the anaemia.

The headaches and eye strain complained of by this patient, and the asthenopic symptoms, muscular imbalances, etc., found in other individuals with normal eyes, are accounted for by the severe form of toxæmia, from which these individuals suffer.

I firmly agree with Daland in his very excellent treatise of indicinuria, in that intestinal toxæmia is as frequent a cause of headaches as errors of refraction.

THE EXCRETION OF UROTROPIN INTO THE ANTERIOR CHAMBER OF THE EYE.

By HARRY S. GRADLE, M. D.

CHICAGO.

The ingestion of urotropin per os and its subsequent excretion, partially as urotropin and partially as formaldehyde, into the urinary bladder together with the antiseptic effect there, has been used therapeutically for a long time. That the drug is excreted into other body cavities and exercises its bacteriacidal effect there was first proven by Crowe in 1908 (1). In that and subsequent articles, he showed that it is excreted into the gall-bladder, spinal cavity, etc., and there has a strong antiseptic action. But the full

effect of urotropin is first obtained after a paracentesis of the cavity in question. Also the probable excretion of urotropin into the middle ear has been made use of by otologists within the last year, with excellent clinical results, although without experimental foundation.

In view of these facts, I have attempted to apply the action of the drug to the eye. As the only space there with a changeable fluid is the anterior chamber, the problem seems at first simple. But it is a well-known fact that pneumococci (and it is this organism that we have to deal principally with in intra-ocular infections, as post-operative iritis and infection after perforating injury) (2) grow with extreme difficulty in the anterior chamber of the animal eye and here are attacked by the normal anti-bodies and easily killed. So the therapeutic value of the drug will after all have to be proven clinically rather than experimentally and here I will give only the experimental end of the problem.

The chemical proof of the presence of urotropin, i. e., formaldehyde, is qualitatively simple, but quantitatively merely guess work. The concentration of the drug in solution can be obtained only by a comparison of the color of the end reaction of the qualitative test. The simplest test is the Hehner. (1-3-4-5.) But to differentiate between urotropin and formaldehyde in solution is impossible except as follows: A mixture of urotropin and formaldehyde responds to the Hehner test with a certain shade of violet as end reaction. If this be then heated, the color deepens. Formaldehyde alone does not deepen in color on heating. Hence I shall speak merely of urotropin and this will have to include both urotropin and formaldehyde.

My first experiments were to determine the delicacy of the tests in very small quantities of fluids as would be obtained from the anterior chamber of the eye. Without going into tiresome details the results can be summarized as follows: Urotropin responds to the Hehner test in concentration of 1-15,000 up to as high as concentration of 1-150,000. Maximum intensity of reaction obtained in concentration of 1-75,000. Beyond the limits mentioned, no response. The various ingredients of the artificial aqueous humor (6) does not in the least interfere with the delicacy of the reaction.

Experiment I.

10. a. m. Fed a moderate sized brown rabbit 0.5 gms. urotropin per os.

12 m. Under holocain anesthesia punctured the anterior chamber of the right eye. The aqueous thus obtained did not respond to any of the tests for urotropin.

4 p. m. Again punctured anterior chamber of right eye. Fluid gave positive reaction to Hehner with a color which corresponded to about concentration of 1-75,000. Also punctured anterior chamber of left eye. Positive to Hehner, but with color of about 1-150,000.

5 p. m. Punctured anterior chamber of right eye. Fluid did not respond to Hehner until it had been diluted with about four times its volume of water (primary concentration = to about 1-10,000). Punctured anterior chamber of left eye. Fluid positive to Hehner with concentration of about 1-100,000.

Experiment II.

9.30 a. m. Fed medium sized white-brown rabbit 0.5 gms. urotropin per os. and at the same time dropped 1% atropin into right eye and 0.75% eserine into left eye.

12.30 p. m. Right pupil well dilated, left pupil nearly pin-head size. Punctured anterior chamber of both eyes. Both fluids were positive to Hehners, but the right aqueous humor was appreciably deeper in color than the left.

4 p. m. Atropine and eserine effect good. Again punctured anterior chamber of both eyes and the fluids were again positive to Hehners. Fluid from right eye gave color corresponding to concentration of about 1-50,000, while from the left eye the color corresponded to about 1-100,000 or less.

Experiment III.

This experiment is too long to give in detail, but can be summarized. Into three sterile test tubes I put three aqueous humors: I. normal; II, obtained by puncture two hours after feeding urotropin; III, obtained six hours after feeding urotropin and after one paracentesis of the chamber. To each of these tubes I added one loopful of the heart blood of a mouse which succumbed within 36 hours to an intra-peritoneal injection of virulent pneumococci. The tubes were well shaken and placed in the incubator at 37°C. for 24 hours. At the end of this time, one loopful of fluid from each tube was inoculated into a culture tube of serum bouillon and the rest of each tube injected into a mouse intra-peritoneally. There was a growth of pneumococci in each tube and each mouse died within 36 hours.

What do these experiments show?

1. Urotropin is excreted into the anterior chamber of the eye in about 3 hours after ingestion per os, reaches its maximum excretion in about 7 hours, and is excreted in great quantities after repeated paracentesis.

2. The excretion of urotropin into the anterior chamber of the eye is remarkably increased by the use of a mydriatic locally.

3. Urotropin in the aqueous humor in the concentration in which it occurs in the anterior chamber does not inhibit the growth of virulent organisms in the test tube.

In a similar series of experiments which is needless to detail here, I was able to show that urotropin is secreted with the tears under about the same circumstances, though in less time and in slightly greater concentration than in aqueous humor. Also here there is no inhibitory effect upon the growth of virulent organisms in the test tube.

Although these results do not hold very much promise for the therapeutic use of urotropin in ocular affections, still I believe it to be of value. The drug is not present in sufficient concentration to kill infecting organisms, but it will undoubtedly weaken them sufficiently to allow them to be more easily attacked and killed by the normal anti-bodies in the various secretions. This would be especially true in cases of perforating injury or post-operative infection where but a few organisms gain admittance to the eye and where there is a constant change of aqueous humor, due to the opening of the anterior chamber. But this must be worked out clinically as experimental proof of the problem is impossible, and the clinical testing is without danger to the patient.

- (1) S. J. Crowe, *Arch. de Pharmacodynamie*, XVII, 1908.
- (2) Elschnig and Ulbrich, *Graefe's Archiv*, 1905.
- (3) Lehmann, *Methoden der praktischen Hygiene*.
- (4) Schmidt, *Pharmaceutische Chemie*, p. 311.
- (5) Gadamer, *Lehrbuch der chemischen Toxicologie*, p. 308.
- (6) Nicati, *Archiv. d'Ophthalmologie*, XI, p. 28.

TWO CASES IN WHICH THE X-RAYS FAILED TO LOCATE A FOREIGN BODY WHICH WAS AFTERWARDS SHOWN TO BE PRESENT IN THE EYE.

By ROBERT L. RANDOLPH, M. D.,

BALTIMORE.

The cases recorded are very few in which X-ray localization was a failure where the eye was afterward found to contain a piece

of metal. Sweet has had this experience in two cases and he thinks that the failure of the rays to secure a shadow of the foreign body is to be explained by the metal presenting the thin edge to the tube so that the faint shadow made by the steel is lost in the denser shadow of the bony structures forming the external orbital margin. In both of Sweet's cases the piece of steel was in the nasal portion of the lens. Radcliffe and Callan have observed somewhat similar cases.

We have all been surprised, no doubt, at the minuteness of foreign bodies which have been revealed to us by the X-rays, but the results obtained by an examination with the X-rays in the two cases reported here have injected an element of uncertainty into a method of diagnosis which I had begun to think practically infallible. The first case was one to which I have referred elsewhere, but which I have never reported in full. The man came to me with a history of an eye blind for nineteen years. He said he had been struck in this eye a few days previously. There was a short linear wound of the cornea and considerable pericorneal redness. Light perception was gone and the red reflex was not to be seen. The tension of the eye was possibly a little above normal and the eye did not look as though it contained a foreign body that is to say there was no wound of the iris to indicate that a foreign body had passed through into the eye. He was referred to Dr. F. H. Baetjer for X-Ray examination, which resulted negatively. A day or so later the pericorneal redness disappeared and he returned to work. Within a week he was back again with pain and pericorneal redness, which subsided in a few days with the usual treatment. Twice after this there was a similar outbreak. He would remain comfortable for several days and then would have an outbreak of inflammation. He was advised to have the eye enucleated, but he refused, and he consulted two other ophthalmologists, one of whom agreed with me, while the other advised him to keep his eye, as it contained no foreign body. He finally came back to me and the eye was enucleated, and this is the exact size of the foreign body which was found.

It was protruding from the eyeball behind, well out into the orbit and about half an inch to the nasal side of the optic nerve. It was a little thicker in one part, and the part which lay outside of the eye was enmeshed in a tough capsule. Three-fourths of it lay without the eye, while the inner end was sticking through the retina.

The man had carried the steel in his eye for nineteen years and had suffered no inconvenience other than the blindness. The recent injury had taxed the eye beyond its endurance, as evidenced by the recurrent attacks of inflammation, which made impossible the further retention of the piece of steel. But for this injury he no doubt would have carried the sliver of steel the rest of his life.

The second case was that of a young machinist whom I saw last summer. He reported that he had been struck in the eye the evening before I first saw him. There was a small wound at the upper and inner border of the cornea, and just beyond, in the iris, there was what appeared to be a minute slit in the iris, but this point was not clearly made out. The lens was cloudy and the fundus details were not discernible on account of the hazy media. X-ray examination was negative. I was much surprised, for I felt almost certain that the eye contained a foreign body from the character of the corneal wound from what was apparently a wound of the iris and from the hazy media. The eye got slowly worse. The pupil became blocked, and after a month's treatment there was still pericorneal redness and the tension was minus. Before enucleating the eye two more plates were made, but with negative results. The eye was removed, and far back in the vitreous, surrounded by a mass of exudate, was an irregularly shaped bit of steel of this size.

In this case then three plates were made with negative results. Such cases, just as soon as they are seen, should be subjected to several exposures with different positions of the tube. Ordinarily one plate, sometimes two, are made, and the examination is only repeated when the symptoms suggest that a mistake has been made at the first sitting, and it is evident that in this way much valuable time is lost.

A PRELIMINARY REPORT ON THE TREATMENT OF SCLERITIS AND PTERYGIUM.*

By E. R. CARPENTER, M. D.

EL PASO, TEXAS.

During the last 18 months I have seen six cases of scleritis and episcleritis, two being old cases of from one to two years standing; the other four were practically of recent origin.

*Reported at the EL PASO COUNTY MEDICAL SOCIETY, February 6, 1911

The two old cases had fortunately not produced any serious visual disturbance; they had been treated by several specialists, and I also used the usual remedies recommended without any marked result. At times there was some improvement, but would soon have a relapse. I finally began experimenting with sub-conjunctival injections of various substances, and discovered that the pure tincture of iodine injected over the region involved would invariably clear up the condition in a short time. I used this on all cases afterwards, and have in no case failed to get a perfect result. Several physicians have seen this experiment, and were very much surprised at the rapid recovery. As one would expect a marked reaction takes place, but no sloughing occurs, and but little pain is experienced. I always use a five per cent injection of cocaine preceding the iodine, and the continuous use of ice applications for several hours afterwards.

All regions involved were cured at the end of a week or ten days. Any new appearance was immediately checked.

Probably there are cases of specific origin which should have special treatment, yet etiology did not seem to be an important factor in my cases. In two of these cases I noted the disappearance of small pterygium following the iodine treatment, and am now experimenting on the use of tincture of iodine in the treatment of this trouble, which I expect to report in a few months.

CONJUNCTIVITIS WITH ULCERATION OF THE CORNEA, DUE TO THE BACILLUS PYOCYANEUS.

BY HANFORD McKEE, B. A., M. D.

(From the Pathological Laboratory of the Montreal General Hospital.)

MONTREAL.

Some weeks ago an adult male of twenty-eight consulted me and complained of a painful right eye. The history was that for three or four days his eyes had been inflamed, with the lids adherent in the mornings, and for one day his right eye had been very painful. Examination showed a severe purulent conjunctivitis in each eye. Just above the center of the right cornea an ulcer the size of an ordinary pin's head was seen. The ulcer was deep and the base necrotic. There was no history of trauma.

Smears prepared from the conjunctiva and ulcer showed small gram negative bacilli in large numbers. Cultures from the conjunctiva and cornea gave growths of a small gram negative bacillus

which gave a green color to the agar media and rapidly liquified the blood serum. The bacillus was obtained in pure culture in all the tubes inoculated. It grew at room temperature and at 37 c., and in the gelatine and agar tubes the green color imparted to the media was pronounced. The initial light green color of the agar always became darker after the cultures had stood for a few days, also when the agar cultures were agitated with chloroform a blue coloring became evident. The culture obtained from the conjunctiva was inoculated into a guinea pig's conjunctiva and the surface of the cornea slightly scarified. Forty-eight hours later there was a large corneal ulceration, which progressed rapidly to panophthalmitis. From the corneal lesion in the guinea pig smears and cultures gave an organism similar in every respect to the one described above. We were dealing here with a strain of the bacillus pyocyaneus of considerable virulence. The ulceration of the cornea was thoroughly cauterized with the actual cautery and the conjunctivitis treated with twenty per cent argyrol. No further treatment of the ulceration was necessary and the conjunctivitis cleared up satisfactorily.

Experiments have shown that the bacillus pyocyaneus is at times pathogenic for the conjunctiva, and that, secondly, the cornea becomes involved. This may have been what occurred in this case. The history of a conjunctivitis for three or four days, followed by great pain in the right eye, is suggestive. The virulence of the bacillus pyocyaneus varies greatly in the conjunctival sac. This is shown by Pusey's report. In his first case the conjunctiva was inflamed, but in the second there were no objective signs of conjunctivitis. Pusey found five cases of conjunctivitis due to the bacillus pyocyaneus in the literature. They were all in new-born children.

According to Axenfeld, isolated cases of purulent keratitis from the bacillus pyocyaneus have been reported by Callenga, Bietti, Macnab, De Berardinis, Szezbalski, D. Smith, Callan O. Ewing, and a pyocyaneus conjunctivitis by Derby.

References:

Pusey.—Archives of Ophthalmology, November, 1908.

Axenfeld.—Die Bakteriologie in der Augenheilkunde, p. 310.

CONGENITAL PIGMENT OF THE CORNEA.

BY HEDLEY V. TWEEDIE, M. D.

BALTIMORE.

The case was that of F. R., a young white man twenty-five years of age, born in Virginia, occupation sailor. He applied at the Johns Hopkins Hospital Dispensary on Dec. 8, 1910, for relief of poor vision in the right eye. His general appearance indicated perfect health and no history of any sickness at any time could be elicited.

He stated that he had never had any trouble with eyes except the present condition, which, according to his mother, had existed since birth. On examination a small nebulous opacity of the right cornea was visible, and on further examination by the oblique method and with the binocular loupe the opacity had somewhat the appearance of a very thin fish scale, with a deeper opaque central portion, running vertically and resembling a spindle slightly curved, with the concavity towards the temple.

The opacity consisted principally of very small yellowish brown dots of pigment, more numerous in the central portion and becoming smaller and more scattered towards the periphery. The size of the patch was about $2\frac{1}{2}$ by 3 mm. It would be impossible to state the exact depth of the pigment, but it seemed to be situated just beneath Bowman's membrane.

The remainder of the cornea was perfectly clear, anterior chamber of normal depth, no remnant of pupillary membrane, iris normal, as was also the vitreous and fundus.

The left eye showed a similar opacity, but not so large or dense, and located well to the nasal side of the center of the cornea, so that vision was but little obstructed. In other respects the left eye appeared normal. A slight nystagmus was noticeable, especially when the eyes were turned to the left. The patient had never complained of trouble in the left eye and had no knowledge of an existing corneal opacity. The following glasses were prescribed:

O. D. — C 3.75, axis 180 = 5/100, O. S. — S. 1.75 = + C 2.75, axis $97\frac{1}{2}^\circ$ = 20/20.

Without glasses, V = O. D. 5/200, O. S. 20/50.

I am greatly indebted to Professors Theobald and Randolph for their kind interest in the examination of this case and to Professor Theobald for permission to report the same.

508 Park avenue, Baltimore, Md.

NOTES ON A CASE OF HERPES ZOSTER OPHTHALMICUS.

By W. T. WALLACE, M. D.

BERLIN, ONTARIO.

(Illustrated.)

Referred by Dr. Webb of Waterloo. The onset resembled an ordinary eczema, no pain or rise of temperature. Vesicles be-



gan to form along distribution of supra-orbital and supra-trochlear and nasal branches of the trigeminal nerve; and from the characteristic arrangement of the vesicles, a diagnosis of herpes was made. The patient had always been in good health. No history of any specific affection; nor had he had any previous eye trouble.

On the sixth day complete ptosis developed, intense chemosis and outward deviation of the eye. It was at this time I first saw

the patient. On raising upper eyelid conjunctiva protruded, chemosis being so intense and general that the cornea was with difficulty inspected. No evidence of any vesicles on conjunctiva or cornea, deep scleral veins engorged, cornea oedematous but did not stain except a slight general pigmentation which washed off easily, tactile sensation absent, pupil moderately dilated and irregular, suggesting adhesions, no reaction to light, tension normal and no tenderness over ciliary region, fundus invisible, vision, hand movements only. The eye was immobile except for movement outward, the external rectus being the only muscle in action.

In forty-eight hours after the use of atropin and leeches, the pupil was fully dilated and cornea became clear. Much pigment remained on anterior lens capsule, vitreous clear, a large circumscribed, yellowish-white exudate, with soft indefinite edges, extended outward from disc involving the macular region, a retinal vessel passing over it and forming a bend as it reached the normal retina on a lower plane.

In ten days' time vision had improved, limited movements of eyeball in all directions, diplopia on holding up lid.

A traumatic ulcer, which healed promptly, developed at this time from an erosion by patient's finer nail, sensation being absent.

Treatment adopted: Diaphoresis, mercury and iodides, dionin and atropin locally and finally tonics.

At the end of four weeks, muscles were normal, at least diplopia and ptosis had disappeared, and in six weeks eye had lost all traces of redness and vision still further improved, fundus only slightly improved, exudate not quite so large and lighter in color.

On fitting the patient for glasses some two months later, I found that his myopia had increased from 1.5 to 3.5 diopters. His eyes had been tested a few months previous to his illness when both eyes were the same as regards vision. (-1.5 sph. = 6/6 both eyes). Vision in left eye 6/24, and has remained so during the past year.

The exudate now replaced by a well defined plaque clear cut edges, smaller in area than the original and much whiter in color.

From the fact that both third and fourth nerves were affected and from the rapidity with which the paralysis disappeared one might suggest that the lesion was entirely peripheral and not affecting the ganglion.

MIXED IRREGULAR ASTIGMATISM FOLLOWING
INJURY TO THE EYE.

ROBERT SCOTT LAMB, M. D.

WASHINGTON, D. C.

I wish to report an unusual case of injury to both eyes with loss of vision in the right and mixed irregular astigmatism in the left, as follows:

Mr. O. E. F., clerk in one of the government offices, came to me in November, 1908. He had been badly injured in Jamaica while fixing a coil spring on a door, the rod broke and he was struck in the right eye, losing the sight of that eye. The other cornea, after injury ulcerated, but recovered with leucomatous scars. He was examined while under treatment in New York by Dr. Duane and claimed to have obtained good vision at the time of the trial, but the glasses were never prescribed because of Dr. Duane's absence from the city at the time he was discharged and he had since been trying to get glasses, first from one person or another, mostly opticians. When first seen by me he was wearing

O. D. + 1.75 sph.

O. S. + 1.75 \subset + 2.25 cylax 15°.

And for near:

O. D. + 2 sph.

O. S. + 2 cylax 105° — 2.25 cylax 125°.

He had also another pair bifocals for distance and near:

O. D. — 0.50 + 2. sph.

O. S. — 2 cylax 105° + 2. sph.

With none of these could he see well.

On first testing I found:

O. D. no improvement with glasses.

O. S. + 1.12 sph. \subset — 2.50 cylax 135° = 6/5.

Under homatropine:

O. S. + 1.62 sph. \subset — 2.25 cylax 120° = 6/5.

Post-cycloplegic examination showed after use of stenopeic slit for finding axis:

O. S. + 2 cylax 10° \subset — 2.75 cylax 115° = 6/3.

These have been given him for both near and distance and he has perfect comfort with them as well as remarkably good sight. The least change in the adjustment, however, makes him so unhappy that he immediately seeks relief at the hands of the optician.

for correcting the adjustment. He has been wearing them now for over two years and though I see him from time to time unprofessionally I know he has perfect comfort with the lenses.

It was one of the few cases in which the stenopeic slit seemed to be more accurate than the results of retinoscopy, possibly because of the leucomatous scars of the cornea.

An unusual feature was that he had always required two pair of glasses, one for distance and one for near, and this is what led me to look farther even after obtaining 6/5 vision for distance, hoping that I might find some glass to do the work for both distance and near, unless, of course, there was also some injury to the accommodating mechanism.

TOXIC PARALYSIS OF ACCOMMODATION.*

HOWARD F. HANSELL, M. D.

PHILADELPHIA.

The accommodation is accomplished by the action of the circular and radiating fibers upon the lens and possibly the choroid. If the corneal limbus is the fixed point contraction of the radiating fibers means the dragging forward of the posterior pole: if the posterior pole be the fixed point it means the backward displacement of the limbus with relaxation of the suspensory ligament. Both sets of fibers are innervated by the ciliary branches of the third nerve and by the filaments of the sympathetic system after they have passed through the ciliary ganglion. Beyond the regulation of the vascular supply in the ciliary region it is not known that the sympathetic nerves have any influence upon the contraction or relaxation of the ciliary muscle. The iris and ciliary body, being essentially different only in their form and position, are usually associated in their physiologic and pathologic action. Paralysis of the one muscle independently, when due to central causes is ascribed to nuclear or fascicular lesions. Such lesions are rare. Commonly the two muscles are affected together and by the same causes. Observation in reports of absolutely independent paralysis may not always be accurate. The determination of the power of accommodation by small test letters selected by accident or according to the printers scale of sizes and by testing both eyes at the same

*Read before the Section in Ophthalmology, College of Physicians, of Philadelphia, Jan. 19, 1911.)

moment is less accurate than the method suggested by Duane (*OPHTHALMIC RECORD*, August, 1909). A disc 38 mm. in diameter and covered with velvet is set in a ring like that in which the glasses of the trial case are mounted. The ring and its handle are blackened, on the center of the disc is glued a white card 3 mm. by 1.25 mm., which is exactly bisected by an engraved black line 3 mm. long and 0.2 mm. thick. This line must be very sharp, even if free from any slight irregularities. The card is brought up until the engraved line blurs, then withdrawn until it is clear, then carried back and forth once or twice, until we ascertain the precise point at which the blurring just begins. This will be the near point. The test is employed in conjunction with Prince's rule; also, determination of the size and reaction of the pupil cannot be precise according to our present methods.

The pupilometer, a round card consisting of perforations of graduated sizes is held against the temple and comparison made with the size of the pupil under examination. Such measurements cannot be more than approximately correct and differences of opinion among different observers are sure to occur. In view of the difficulties in estimating precisely the degree of involvement of the iris and ciliary body in paralysis, the reports of instances of paralysis without association, should be received with a few grains of allowance.

The dilation of the pupil which is so often conjoined with amblyopia from toxemia cannot be classified as toxic paralysis of the pupil. It is not dependent upon the affection of the peripheral or central nerves but upon the degree of amblyopia, reaching its maximum when all light perception is lost. The morbid changes on the optic nerve interrupt the circle of reflex pupillary reaction in its first part. No stimulus to the pupil—acting center in the brain, or in the cord can be carried by an optic nerve so deficient in function that it cannot convey sensations of light. Ciliary paralysis also does not occur in such cases. The accommodation cannot be determined because of the low acuity of vision without the use of a special instrument to measure the change of curvature on the anterior surface of the lens. It is probable, however, that the ciliary muscle, like the iris, is not involved directly.

AN INEXPENSIVE POCKET TRANSILLUMINATOR.

BY HOLBROOK LOWELL, M. D.

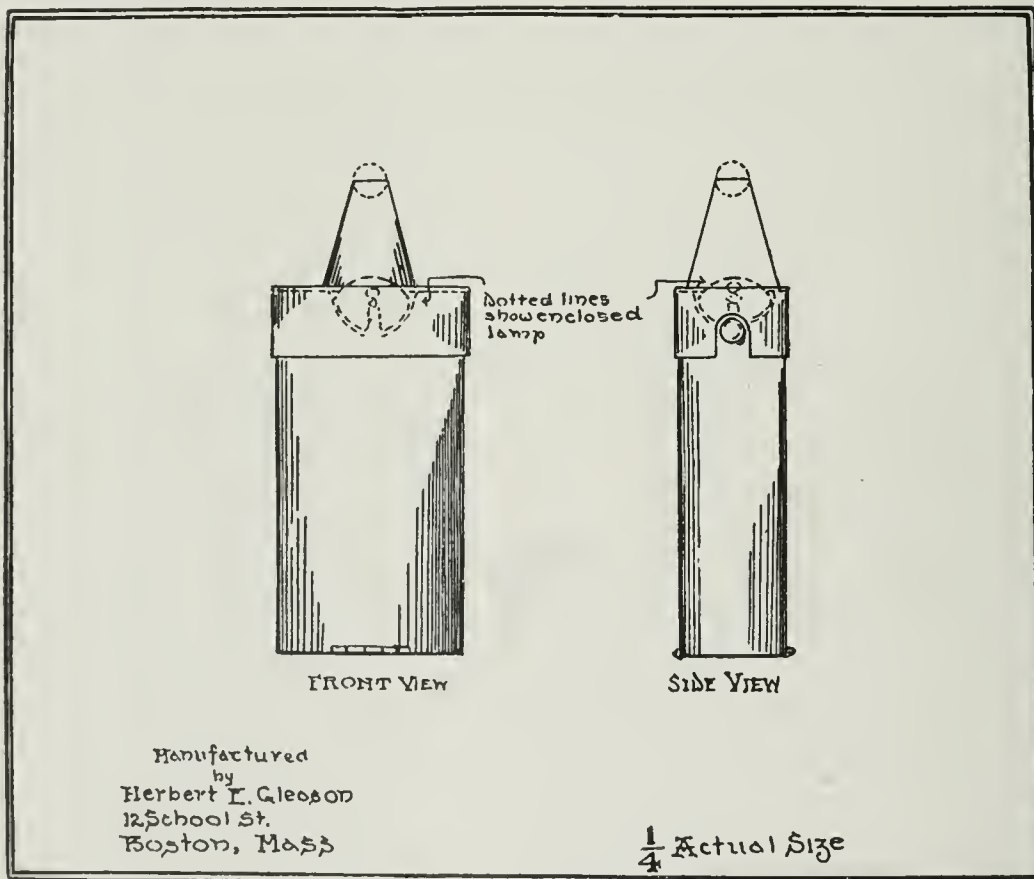
(Junior Assistant Surgeon, Massachusetts Charitable Eye and Ear Infirmary.
Assistant Ophthalmic Surgeon, Boston City Hospital.)

BOSTON, MASS.

(Illustrated.)

Many complicated and expensive instruments have been devised for transilluminating the eyeball, but as yet no instrument has come to the writer's knowledge which is simply constructed and likewise efficient.

For some time the idea has been in his mind of making an instrument which would be inexpensive, easily portable and ef-



ficient, and which, besides its use in transilluminating the eyeball in questions of neoplasm, would also be useful in discissions and like ophthalmic operations.

He has at last had made an exceedingly simple attachment for a pocket flash light. This particular flash light has a tungsten lamp of considerable power. The illustration needs little description. The cap attachment is made of copper, or any other suit-

able material. The interior of the tube is silver plated and the whole exterior of the attachment is painted a dull black. The tube flares from the circumference of the lamp, being 21 mm. high to the opening, which is 5.5 mm. inside diameter. The slot at one end of the cap admits the switch button of the lamp, but by reversing the cap the button may be kept pressed down, thus closing the switch and giving a steady light. No magnifying glass, or glass rod is used, as the light and reflection from the silvered surface gives ample illumination. There is no heat present even after protracted use. The light projected is solid with no reflection of the luminous wires.

The writer has been led to report the foregoing device in spite of its simplicity because of his confrères' kindly approbation, and in the hope that more use may be made of this simple device for ophthalmic diagnosis and operating.

Senator Glackin, of Cook County, has introduced a bill (S. B. 5) providing for a state sanatorium for consumptives and appropriating \$300,000 for this purpose.

A committee of the Chicago Woman's Club has prepared a bill to establish a commission for improving the condition of the adult blind in their homes. This bill provides for a state board of five persons, to be known as the Illinois Commission for the Blind, which shall act as a bureau on information and industrial aid, promote visits to the adult blind in their homes for the purpose of instruction, aid them to find employment, develop home industries for the blind, furnish them with material and tools, assist them in marketing their products, circulate books among the aged and helpless, or use any other methods it may deem expedient, except that it shall not undertake the permanent support or maintenance of any blind persons. The bill calls for the appropriation of \$10,000.—*Jour. A. M. A.*

Reports of Societies.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of January 21, 1911, in Colorado Springs.

DR. A. C. H. FRIEDMAN, PRESIDING.

Blasting Injuries.

Dr. Melville Black presented a man whose eyes had been severely injured by the explosion of a misplaced charge, in a copper mine. The right eye had quantitative vision through a white exudate back of the coloboma made comparatively soon after the accident, by an optical iridectomy. The anterior chamber was narrow, the iris atrophic, and the globe tender. The left eye was blind and showed plus tension. Dr. Black raised the question of operative procedure on the right eye.

Discussion.—Dr. Jackson thought that the great liability of closure of the pupil when iridectomy was done rather soon after severe traumatism to the eye, indicated considerable delay in operating. Dr. Black's case, as in others of this class, he would not operate before two or three years after the injury.

Multiple Corneal Ulcers.

Dr. E. R. Neeper showed a young man with a history of epiphora of several years' standing who, in the week before, had developed one large and eleven very small superficial ulcers of the cornea of one eye, following influenza. Iodized phenol was of no apparent benefit, but applications of nitric acid were effective. Protonuclein had been dusted in once that day. The globe was still very red and the eye painful, but the corneal epithelium took scarcely any stain from fluorescein.

Discussion.—Dr. Bane suggested one per cent soda cinnamate injections, sub-conjunctivally.

Dr. Black had found 25 per cent argyrol, instilled every hour, very beneficial in corneal ulcers. He considered that there was a profound trophic disturbance in the case exhibited.

Bullous Keratitis.

Dr. Neeper also showed a woman of 66, whom he had first seen January 12, 1910. The left eye had been painful most of the time for the previous six months. Family and personal history good excepting "sick headaches" nearly every month all her life, and chills for seven years during childhood. She had lived in Tennessee, Missouri, and Kentucky until she came to Colorado in 1906.

Since then sick headaches had been much less frequent but nocturnal headaches became very persistent until an osteopath treated her in November, 1910. When first seen the lower half of the left cornea took a moderate, rather uniform stain, the surface being irregular with a facet 2mm. in diameter midway between center of cornea and limbus. The patient had been seen with great frequency during the past year, and scarcely a day had passed without the development of one or more bullae on the lower half of the left cornea. Since February, 1910, an occasional bulla had formed on the same portion of the right cornea. Treatment internally had covered a great scope, viz.: Eliminants of all sorts, quinine, mixed treatment, tonics, electricity, etc., etc. Locally, antiseptics, astringents, miotics, sedatives, bandaging after using ointments, etc., etc. No treatment had helped greatly although several had promised much at first.

Discussion.—Dr. Patterson said that iridectomy suited some of these cases, and would advise it in the right eye.

Unusual Case of Squint.

Dr. Neeper presented a woman, aged 24, who came for glasses for headache and asthenopia, January 3, 1911. Monocular vision at all distances. The right globe turned up and out to axis about 120° . When fixing intently in the distance vision= $20/30$ —each eye. Under homotropin was given $+50$ D. Sph.= $+50$ D. Cyl. axis 90° , improving vision slightly. With this correction, January 20th, there was binocular vision at the near point but the condition as to distance was unaltered. Under homotropin there was orthophoria at all distances. The glasses benefited the asthenopia.

Discussion.—Dr. Patterson had used the stereoscope successfully in upward and outward squint.

Traumatic Optic Atrophy.

Dr. Neeper also presented a man who was caught in a mill belt and badly injured about the head and upper part of the body, Sept. 9, 1910. He was first seen eight days later, with both eyes "black." lacerated wound of the angle of the right jaw and much soreness in the right supraorbital and temporal regions. The right eye was blind, responding to consensual stimulation, and dilating fully when the left was covered. The right also diverged considerably. The patient's mentality was poor but he thought the right had been blind ever since the accident. The media had been clear at all times, and the fundus normal except dilated, tortuous veins. K. I. was given. High frequency current was begun Oct. 23d.

Oct. 1st, R. V.=fingers $\frac{1}{2}$ meter, upper nasal field. Oct. 5, right disk showed pallor. Strychnia to saturation was added to the medication. Oct. 24th, pallor increasing. High frequency was discontinued and intermittent X-ray begun. Dec. 16, R. V.=5/200 and disk to nasal side better color. Jan. 20, 1911, R. V.=9/200. Disk not as good color as a month before.

Discussion.—Dr. Black thought the injury must have occurred at the optic foramen, the nerve being pinched, but some few fibers escaping damage.

Dr. Jackson thought there had probably been a hemorrhage into the nerve sheath, and that absorption had gone on far enough to restore some vision. Optic atrophy was very evident.

Congenital Miosis.

Dr. A. C. Macgruder presented a child of six years, with history of squint and contraction of the right pupil from birth. R. V.=20/200, not improved by any leans. L. V.=20/30, with 3 D. hyperopia. Atropin failed to dilate the right pupil, but dilated the left widely. There was slightly rotary nystagmus and paralysis of the internal, inferior and superior rectus muscles. The case was shown in the hope of determining the etiology.

Discussion.—Dr. Jackson stated that he considered the case one of congenital absence of certain movements, due either to defective centers or possibly to absence of muscles. He had seen congenital divergence, with retraction movements.

Dr. Libby called attention to the facial expression as indicative of impaired mental development.

Suppurating Corneal Ulcer.

Dr. Magruder also showed a coal miner, aged 62, first seen December 27th, with history of having been struck by a piece of coal on the outside of the upper left lid eight days previous. He had no pain until twelve hours later, and did not apply for medical treatment for eight days, at which time there was a large ulcer of the cornea, which extended to Descemet's membrane. There was a distinct iridocyclitis, with synechia which atropin failed to break up. The eye and surrounding parts were thoroughly cleansed with bichlorid solution; and carbolic acid, followed by alcohol, was used on the ulcer. Atropin and hot compressions were ordered. Staphylococcus infection was found, and so a vaccine containing twenty million staphylococci was administered, but without effect. On January 2d, hypopion existed. The ulcer was cauterized, the anterior chamber being entered. Dionin powder

was applied to the ulcer previous to the use of cautery. The cautery was used three times. The eye was washed from time to time and atropin and dionin used. On January 18th, 1 cc. of 2% iod. chlo. sol. was injected sub-conjunctivally. On January 20th $\frac{3}{4}$ cc. of the following was injected: Mercury cyanide, 01, sod. chlo. 1.00, and distilled water 50.00. This was very painful; but the patient reported on the following day that he had been freer from pain than at any time since the accident. The hypopion had entirely disappeared and the eye looked very much better than for several days. Alcohol compresses were used as an external dressing.

Discussion.—Dr. Black had found cyanid of mercury injections very effective in corneal ulcers, and that lachrymal disease was nearly always associated with severe keratitis.

Drs. Marbourg and Goover had found coal very effective in corneal injuries.

Dr. Bane considered the germs of the lachrymal sac a serious menace in abrasions of the cornea, and had found coal very ineffective.

Dr. Neeper had found normal salt solution more desirable than cyanid of mercury for deep injections.

Dr. Patterson thought that personal filth was the worst feature encountered in corneal infections.

Dr. Friedmann believed the severe laceration caused by coal was a factor in infection. He placed copper first and coal second, in infection, and advocated the cautery and normal salt injections in infected corneal ulcers.

(?) Rupture of Optic Nerve Sheath.

Dr. A. C. H. Friedmann presented a boy of 13 years, with a history of having been struck over the right eye by a rock, about two years before. No change in the appearance of this eye was noticed at the time; but about a year later advice was sought on account of convergent squint. R. V.=fingers at 5 metres, L. V.= $\frac{5}{4}$ with 0.50 cyl. ax. 90° . Ophthalmoscopically, the nasal margin at the disk was best seen with -3.00 spherical, while the temporal margin was rendered distinct with -10.00 spherical; giving an oblique appearance to the nerve head, which was also unduly white.

Discussion.—Dr. Jackson said that if this eye were known to have been normal before the accident, he would say that there

had been a tearing loose of the optic nerve sheath by the injury. Otherwise he would consider the defect congenital. He thought the case most interesting ophthalmoscopically.

Dr. Hosmer considered that the lack of pigmentation of the conus argued in favor of congenital defect.

Dr. Bane and others present had never observed this condition.

Abducens Paralysis from Meningitis.

Dr. Friedmann also showed a patient of eleven years who had suffered from convulsions when fifteen months old, a "lame foot" resulting. Spinal meningitis had been diagnosed by Dr. G. E. Newhaus. Talipes equinus, horizontal nystagmus and paralysis of the external rectus developed. It was stated that the child had never seen well. R. V.=5/25 with +0.50 +0.75 cyl. ax. 90°: L. V.=fingers at 5 metres.

Toxemia of Pregnancy.

Dr. J. J. Pattee reported a primipara of thirty-eight who had been married nine months, and now had a child nine days old. A month before she had been sent to the hospital, on the discovery of 30 per cent of albumin in the urine. There was no headache, convulsion or coma. Under treatment the albumin was reduced to 17 per cent; but when it rose to 20 per cent, the woman was delivered by aid of forceps and under general anesthesia. After this the first impairment of sight was noticed in inability to read. R. V.=fingers at 8 feet, L. V.=fingers at 10 feet. The ophthalmoscope showed 8 or 9 distinct spots of yellowish red retinal exudate about half the size of the disk. Dr. Pattee desired an expression of opinion as to the prospects for vision.

Discussion.—Dr. Jackson said that there was a strong probability of useful vision, and that the exudates generally cleared up entirely or nearly so.

Dr. Patterson asked if the toxemia was not the cause of the poor vision.

Drs. Black and Libby thought the prognosis good.

Dr. Goover mentioned a primipara at 7½ months with hemorrhagic retinitis, and vision reduced to 6/50. Premature labor was induced. Normal vision was restored. He also recalled two other similar cases.

Dr. Marbourg related a case with albuminuric retinitis in two pregnancies; with good end results.

Dr. Libby reported a woman 6½ months pregnant, aged 43,

who had once aborted, and was of the myxedematous type. She complained of dimness of vision for the previous two weeks, being barely able to recognize faces. There had been no former ocular disturbance. There was no headache or eclampsia. The urinary excretion was but 13 ounces in 24 hours, with one-fourth the normal urinary solids, and very abundant albumin. The ophthalmoscope showed marked double hemorrhagic neuroretinitis. Five weeks after the prompt induction of premature labor vision and accommodation had returned to normal. Two months later every trace of retinal exudate had disappeared.

“606.”

Dr. Coover reported two cases of the successful use of 606. In the first case there had been six attacks of recurrent iritis. Iridectomy had been done in the right eye 20 years before. The left showed posterior synechia. The Wasserman reaction was positive. A severe iritis was cleared up by 606, and vision greatly improved. In the other case there was neuro-retinitis, with hyalitis. At first R. V.=6/20, L. V.=6/12. Vision finally fell to light perception in each eye in spite of the use of cacolate of soda, mercury and iodides. Three Wasserman tests were made before a positive reaction was given. Then, following one administration of 606, vision rose in about a month to R.=6/15 L.=6/7+.

Wolffberg's Test.

Dr. Jackson demonstrated Wolffberg's test for ametropia, pointing out that the round solid circle was superior to the incomplete ring in cases of astigmatism.

Dynamite Cap in the Capsule.

Dr. E. M. Marbourg reported an old case of injury of a boy's eye by an exploding dynamite cap. The lens had absorbed, leaving the foreign body, 2x4 mm. in size, embedded in the posterior capsule. Operation was refused by the parents. The other eye had been lost from sympathetic ophthalmitis.

GEORGE F. LIBBY, *Secretary*.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF TUESDAY, JANUARY 3, 1911.

WILLIAM CAMPBELL POSEY, M. D., CHAIRMAN.

Dr. Conrad Berens exhibited several patients, among them an aged negro whose orbit had been exenterated 23 years ago for the removal of a melano sarcoma which had arisen from the apex of

the orbit. The orbit is now filled in by granulations to a remarkable degree, the proliferation having been greatly favored by the implantation of sponge-grafts.

Also a woman of 50 who claimed that her eye had been injured about 7 years previously. The injury was followed by a painful protrusion of the globe, which later subsided and the ball began to shrink. The phthisical ball was enucleated recently, but with much difficulty because of adhesions, and because of the presence of a mass in the orbit. This mass, evidently a melanosaarcoma, appeared to be capsulated. It had arisen within the globe which it had broken through in the region of the nerve and had grown to quite a large size at the apex of the orbit. Prompt healing ensued and the patient is able to leave the hospital.

A third case was that of a man of 50 who was kicked by a horse 15 years ago, the force of the blow falling on the nasal process of the frontal bone. On admission to the hospital two weeks ago the left eye was proptosed outwardly and downwards, the limbus resting on the external orbital margin. A large cystocele was found completely filling the orbital cavity. This was evacuated through an incision which had been made extending along the lower margin over the edge of the nasal bone upward and beyond the orbital notch. As the frontal sinuses were involved, they were opened; the lachrymal and nasal bones were destroyed and the ethmoidal cells were scraped out. The cavity was then drained by a rubber tube through which was passed double strands of heavy silk. The purpose of the silk being that when the tube is removed the strands can be removed one at a time until the fistulous opening contracts upon those that remain. Dr. Berens said that this is the forty-sixth case of mucocoele upon which he had operated, with uniformly good results. In his earlier operations he believed he had not been so radical as he is today, for now he breaks down all suspicious tissues.

Dr. Schwenk reported two cases of "erysipelatoous eruption following the use of bichloride of mercury salve (1-3000) after cataract extraction," in which there was marked swelling of the lids and cheeks accompanied by induration of the tissues and mucoid discharge. The wounds did not become infected but healed promptly and good visual results were obtained. In one case, a woman, healing took place in seven days after the withdrawal of the salve under the continuous use of compresses of hot 50% solutions of magnesium sulphate. The man was discharged

before recovery, yet in his case healing occurred after a few days under the same treatment.

Dr. Schwenk described a case of "thrombosis of the inferior orbital vein." The patient at first came for the relief of greatly distorted lids and conjunctivae following the effects of trachoma many years ago. A short time after this it was noticed that the lower lid of the left side was bluish and the orbital tissues tense. Later the globe protruded and the lid became averted; all in the manner of an intense orbital edema or cellulitis. When an incision was made into this painful and boggy region instead of a free flow of blood or other fluid only small black clots exuded with thin serum. A counter opening was made and a gauze drain inserted which was later replaced by a rubber tube. A week later another incision was made which gave exit to a small quantity of pus which had evidently been sacculated in several foci. In 10 days there was a somewhat freer flow of black debris and pus and the swelling had been much reduced. The patient had hitherto refused to allow any operation on her eyelids because of fear of anesthetics. Advantage was now taken of her willingness for operation provided none were used. Owing to the peculiar distortion present in the right lids, Dr. Schwenk devised procedures which were rather unique in tarsal surgery. The tarsal and ciliary borders were divided, splitting the lid to one inch from the ciliary border. From each canthus vertical and parallel incisions were made and the skin was dissected from the tarsus for about 4 mm. upwards. The corners of this larger flap were stitched to the lower angles of the vertical incisions. Then the ciliary border was fastened to the tarsus. The vertical spaces were united, the flaps of which were turned on their bases and united to the raw surface left on the edge of the new tarso-ciliary border.

Dr. Nelson S. Weinberger, the retiring house surgeon, said that he had had the care of two other cases of erysipelas following the use of the bichloride salve. In those there was the same sort of swelling as in Dr. Schwenk's cases, and they had eruptions over their bodies also.

Dr. Charles Jones presented from Dr. Oliver's Clinic the case of a young girl with interstitial keratitis, of known specific history, in whom the Wasserman reaction was positive, and in whom Erlich's serum had been used with marked benefit. For the three weeks preceding the usual general treatment had had no appreciable effect upon the rather violent symptoms, but two days after the serum

was given the photophobia lessened and in six days the injection was not so great.

The Chairman said he was much interested in Dr. Schwenk's case, especially so as he has used White's formula for the bichloride-vaseline ointment without ever having had such untoward effects from it. He could very well attest the usefulness of the solution of magnesium sulphate in cases of erysipelas for he had employed it in several instances with prompt results.

Dr. Schwenk showed a case of glaucoma secondary to uveal disease and asked advice as to treatment. The Chairman expressed the opinion that as miotics could not now have any effect he would perform cyclodialysis because there would be less hemorrhage than by iridectomy.

Dr. J. Ferdinand Klinedinst, of York, Pennsylvania, detailed a fatal case of orbital cellulitis. The disease had probably extended from a pustule between the orbits which was followed by erysipelas. He could not offer a solution to the question as to how death was caused, as no autopsy was made.

Dr. Schwenk recalled a case of ethmoiditis which proved fatal after probing for the lachrymal ducts.

Dr. S. D. Risley in commenting upon Klinedinst's report and recalling Dr. Schwenk's interesting case, to which he too had been called in consultation, said that for many years he had regarded the region of the lachrymal sac as a dangerous surgical area because of the venous drainage backwards into the cavernous sinuses; and thought it possible that the fatal issue in these cases might be explained by the presence of infectious thrombus in these sinuses. The edema of the eyelids, the proptosis and the severe intracranial pains are signs of such infection. The relatively sudden death he thought could be due to those signs. He referred to an instance occurring in the hands of another surgeon, whose operation upon the lachrymal sac for supposed obstruction of the duct with dacryocystitis was followed by edema of the lids, violent pains in the head, unconsciousness and death in thirty-six hours.

The Chairman said he believed that all such cases of orbital cellulitis were caused by disease of the adjacent sinuses. He would regard the case cited by Dr. Risley as one of prelacrimal abscess involving the frontal cells and he agreed that death could be caused by the passage of septic thrombi from the sinuses. Abscess of the orbit secondary to foci in the body could cause death by

emboli lodging in the orbital vessels, as such a process might very easily involve the cerebral meninges.

Dr. Klinedinst in closing said that the veins can carry septic matter to the orbit and to the cavernous sinuses, and thereby cause the violent pains in the head so frequently noted. In this connection he recalled a fatal case in which a septic thrombus was found in the jugular sinus.

Dr. Zentmayer again showed the man whose eye had been injured by a cartridge. He found at operation that the lenticular mass consisted of lens and capsule, which he disincised, and the case now shows swollen lens particles in the aqueous chamber.

Dr. Highland Dewey exhibited three interesting fundus conditions found in young girls under his care. The first was in a child of 12, in whom there were the remains of a prenatal retinitis, marked by a large area of dense white cicatricial bands involving the macular region. The inflammatory process was believed to have been prenatal because there was a coloboma of the disk. The second was a case of uveitis in a child of 8, in which there were spots of deposits larger than usual on Descemet's membrane, vitreous opacities and a distinct neuritis. The last case, in a girl of 8, the position of the nerve-head was occupied by a greenish-white body, from the upper part of which three large filamentous bands extended forward into the vitreous, where they could be focussed with a plus 7. The vitreous was filled with fine opacities which interfered with the study of the fundus. Dewey believed this case to be one of retained hyaloid artery.

Dr. Weinberger exhibited from Dr. Oliver's service a case showing the good results from resection of the tarsus.

Dr. Posey showed a patient only recently admitted with double choked disk, which he believed to be of the retrobulbar type.

Dr. Risley, in speaking of Dr. Posey's case, said that he had made only a cursory ophthalmoscopic study of the case, yet he thought there were obvious arterio-sclerotic changes in the retinal vessels, some of which presented the characteristic appearances described by Mr. Gunn, while the veins exhibited the signs of increased blood pressure. He was therefore inclined to regard the case as one of optic neuritis associated with cardio-vascular disease. He believed that Dr. Posey had not yet had the opportunity to investigate the case from such a standpoint.

BURTON CHANCE, *Secretary.*

OPHTHALMOLOGICAL SECTION OF THE ST LOUIS MEDICAL SOCIETY.

(February 1, 1911.)

DR. M. H. POST, Presiding.

Complete Spontaneous Absorption of the Lens.

Dr. A. E. Ewing reported two cases; the first a Complete Spontaneous Absorption of the Lens in a patient 70 years of age; a healthy woman who stated that she had cataract in the left eye fifteen years ago, so advanced that she could not see to read with that eye. Four years ago the eye became very red and painful for about one week. She was treated by her general practitioner, and since then the eye has given no trouble. Six months ago vision in the right eye failed, and she then discovered she could see very well with the left. The right eye now had a well developed cataract. In the left eye the pupil is clear, iris tremulous, anterior chamber somewhat deeper than normal, with tension slightly plus. The ophthalmoscope and focal light show aphakia, a delicate pupillary membrane, two minute chalky-looking particles floating in the anterior portion of the vitreous, and a glaucomatous cupping of the disk two diopters in depth. The only evidence that a lens ever existed is its capsule, no trace of even the nucleus being present, unless the particles of the vitreous be remnants of it.

The field is about one-third the normal area, and vision with
20
+ 11.00 Sph. + 0.50 Cyl. axis horizontal, is —. The patient, and
75
also her family, disclaim any operation or injury and there is no evidence of any in cornea or sclera.

Dr. Ewing thinks there is a possibility that the severe inflammation of four years ago was due to rapid swelling of the lens, which produced a rupture in the capsule admitting the aqueous to the lens substance.

The rarity of the case is attested by the fact that this is the first case of the kind he has had during twenty-eight years of private and clinical practice.

Gun-shot Injury of the Left Globe and Orbit, with Two Shot in the Brain

Dr. Ewing's second paper reported a case of gun-shot injury of the left globe and orbit, with two shot in the brain. The patient, a boy first seen by him July 5th, 1910, had been accidentally

wounded, nine months previously, by the discharge from a shot-gun some thirty yards distant, and slightly above the patient. There were twenty-three shot wounds in the scalp nine in the right side of face and ear, and one in the nasal portion of the left upper eye-lid. The patient at the time of the injury had fallen, but had not lost consciousness. He was unable to move the right arm and right leg, though speech and right facial muscles were not affected. There was no vision with left eye. The patient vomited at short intervals for thirteen hours, and was kept mainly on potassium bromide during the following six weeks by the physician in charge because of excessive nervousness.

The wounds healed promptly except those in the left parietal region, which became inflamed after three weeks, and fever developed, but disappeared with the free discharge of pus from the scalp.

Thirteen days after the injury, the patient began to regain some movement of the hand, and two weeks later could feebly move the leg though all movements were indefinite, and patient still walks lame, and has imperfect use of hand and arm. The lids of left eye were much swollen and closed within half an hour after the injury, though the eye ball was not red and there was no evidence of its being injured except that there was no vision, and the pupil, as described by the parents was probably eccentric, or had blood in the anterior chamber.

After about six months the eye developed photophobia and finally the right eye also became irritable. This induced the parents to consult an oculist. Dr. Ewing found the conjunctiva moderately injected, the left eye globe filled with blood, but no external evidence of injury except the small scar from the shot-wound in the upper lid, but from its position, and judging from the general direction of the other shot wounds, it seemed to have missed the globe. Advice to have X-Ray examination was rejected.

Two months later the patient returned with photophobia so marked that examination was difficult. X-Ray plates were then made, and although no foreign body was shown in the eye, enucleation was proposed but patient's parents declined. The left eye was still filled with blood, globe firm, no tenderness. Euphthalmine and cocaine, one per cent kept the patient comfortable in ordinary light. Three months later the blood had cleared from the shallow anterior chamber, the pupil round, $4\frac{1}{2}$ m. m. in dia-

meter, and the lens apparently opaque. The circum-corneal injection left eye, had increased, and photophobia was very marked, both eyes.

Enucleation was submitted to, the operation done under nitrous oxide gas and oxygen. The frozen globe, bisected, showed a practically obliterated anterior chamber, lens dislocated to inner side, and total separation of the retina, which was suspended, to inner side, between disc and pupil in an old blood clot which filled the globe.

A point of interest is that a shot passing by the inner side of the sclera and creating no great visible disturbance of the conjunctiva, should so utterly destroy the eye with intra-ocular hemorrhage to the temporal side, and dislocation of the lens nasalward, as if the concussion had been in the temporal portion of the choroid, or else that there had been a rapid suction action produced by the bullet passing through the orbit.

It is still more a matter of interest that the photophobia entirely disappeared from the right eye, the same afternoon following the morning of the operation.

The radiographs show one shot in the posterior nasal portion of the left orbit, and two shot in the brain, one in central and one in posterior parietal region of left side.

Several others are shown deep in the diploe of the right side of upper portion of the frontal bone. The two shot in the brain must have entered through the left parietal bone, their course being changed to the side of least resistance, which would account for their being so deeply buried in the brain tissue. Or, it may be possible, that the shot followed each other through the same skin wound into the left orbit and through the left orbital foramina. In this case there would probably have been much greater cerebral disturbance. At the time the radiograph was made, the case was referred to Dr. Hoge who herewith discusses the neurological symptoms and results.

Dr. Hoge stated that when he saw the case Sept. 17, 1910, the condition was as follows: The cranial nerves are intact, but there is some impairment of motion in both right limbs, probably a little greater in the leg and foot than in the hand and arm. It will be remembered that the restoration of function was first noted in the hand. The paresis is of the spastic type, tendon reflexes increased, and ankle clonus and Babinski reflex present in right side.

The patient's mind is clear and there is no disturbance of speech. No decided sensory changes. A hemiplegia presents the same physical signs whether caused by an injury to the cortex or to the white matter of the brain. Differentiation can be made only by a consideration of other symptoms present, the history of the case, and the distribution of the paralysis. When convulsions occur, especially if frequently repeated, this points strongly toward a cortical lesion. The ordinary type of hemiplegia (non-traumatic) is usually due to softening or to hemorrhage at the internal capsule, and where the lesion is large enough to cause complete hemiplegia, if on the left side of the brain, as in this case, it almost always produces aphasia.

It is possible to have a lesion in the white matter above the internal capsule, not involving the fibers from the motor speech area of the cortex which will cause paralysis of the leg and arm only, but on account of the wide separation of these fibers in this area, it must necessarily be a large lesion, causing therefore considerable shock, probably coma, and such a destruction of fibers that even a moderate recovery of function would not be probable. A meningeal hemorrhage may cause a more or less extensive paralysis of one or more limbs according to location and extent; may cause complete suspension of function for a time, with complete or approximate restoration of function after its removal by operative interference or by absorption.

In this particular case, a shot severing a meningeal vessel rather high up could have caused a hemorrhage, the clot being thicker over the motor area for the leg, somewhat thinner over that for the upper limb, and not extending down far enough to reach the face and speech centers. Also we would have motion returning first and most completely in the upper limb, as occurred in this case, whereas the reverse would obtain in capsular hemorrhages.

If the shot had penetrated the brain and caused a paralysis by cutting the fibers of the internal capsule to the arm and leg, those to the face muscles could hardly have escaped, and continuing in a straight line it would also have severed at least a portion of the sensory fibers of the capsule.

The same areas would also have been compressed by a hemorrhage to one side of the capsule, if large enough to cause suffi-

cient compression to produce a complete hemiplegia, and in addition we would expect coma.

This analysis of the history and symptoms leads us to believe that we had a meningeal hemorrhage over the motor cortex for the leg and arm, which, being absorbed, has allowed the degree of restoration which at present exists.

If the patient could have been seen at the time of the accident, the indications would have been to turn down a bone flap and remove the clot, thus shortening the time during which the cortex was subjected to compression, insuring a more perfect restoration of function, and lessening the danger of leaving a focus which might favor the development of epilepsy.

Discussion. Dr. Ewing's first paper.

Dr. Adolph Alt said that such cases had been reported before. He was sorry he had not looked further into the literature, but he had had a number of such cases in his own experience.

In most of the cases there was a history of some injury. He mentioned the case of a young engineer who was struck by a piece of iron in an explosion. There was a hole in the iris and a foreign body was made out in the crystalline lens. The lens became opaque and swollen and it and the iris looked rusty. The patient came to see Dr. Alt from time to time and was expecting to have the lens removed. Before this was done, however, the patient wrote that he had felt something give way in his eye, and that he could see now. When Dr. Alt saw him again the lens had been absorbed and the patient had fair vision. Dr. Alt had also operated on a man for the extraction of a minute nucleus which lay in the anterior chamber. He had probably been injured many years before. There was in this case almost total absorption of the lens.

These cases, however, differ from Dr. Ewing's case in which there was apparently no injury. Dr. Alt had seen the case through the kindness of Dr. Ewing and found the eye just as Dr. Ewing had described it.

Dr. Ewing said in regard to the injury, he had inquired of the patient about this, and she said the eye had never been injured. Dr. Ewing said he believed it was the result of this trouble four years ago when there probably had been an acute swelling of the lens with rupture of the anterior capsule.

Dr. John Green, Jr., said he had under observation a little

boy of four years, who was shot in the eye by a blunt stick, projected from a spring gun.

Dr. Green had seen the gun and noted the velocity of the projectile was slight. The tip of the stick, which was $\frac{1}{4}$ inch in cross section, struck the eye but did not penetrate the globe. There was a forward dislocation of the lens below. The anterior capsule showed a minute rupture and the lens was swelling and becoming opaque. The clear pupillary space was beginning to show.

Dr. Green suggested that possibly Dr. Ewing's patient had ruptured the capsule by accidentally striking the eye during sleep.

Dr. Alt, had also under his care at present a boy who had been shot in the eye by a stick.

The physician to whom the boy had been taken had done the best he could do and had promptly dilated the pupil. The mother brought the boy to the clinic the next day stating that the doctor had ruined her boy's eye, when he had done the correct thing. In this case the nucleus has now fallen through a large tear in the lens capsule, into the anterior chamber, and a total absorption of the lens is to be expected.

Dr. J. Ellis Jennings described a case of a man aged 50, who had been struck on the eye by a lump of coal. The capsule was ruptured and the lens slowly absorbed, the pupil being clear in about three months. Dr. Ewing's case, where there was complete absorption of the lens in a patient aged 70, was very rare indeed. Was there not a possibility of a rupture of these suspensory ligament and a disappearance of the lens to the bottom of the vitreous chamber?

Dr. E. H. Higbee, told of a man from Washington, Mo., who worked in a factory where they make corn cob pipes. He was foreman in the factory and was forty-seven years of age. The boys would take the pipe stems and flip them across the room, and this man was accidentally struck by one of these. He was about sixteen feet from the boy. The capsule was ruptured and the lens was entirely absorbed. This was different from Dr. Ewing's case, but it shows that absorption of the lens took place in a man of 47.

Dr. Meyer Wiener said that Dr. Wolfner has a case under observation at the present time who is well up in the seventies and spontaneous absorption of the lens is now going on since they have been observing this man. He came to be operated on for cataract and they had refused to operate on account of his having dacryo-

cystitis. While they had been treating the patient for this condition a black spot occurred in the upper inner portion of the pupil which is getting larger from time to time, and he is now able to count fingers. This is possibly one of those cases where the nucleus is dropping down without any rupture of the capsule, and the lens is becoming softer and being absorbed.

Discussion. Dr. Ewing's second paper.

Dr. Alt had seen a young man who had tried to commit suicide. He placed the pistol to his temple and the shot had passed through the upper part of the orbit lodging in the ethmoid cells. The eye itself was not touched by the bullet, but for some reason was taken out by the surgeon. In this case the retina and the choroid were torn in many places and the eye was filled with blood.

Dr. Green asked Dr. Alt if he did not think that cases of injury from gunshot are apt to fare worse when the shot does not penetrate the globe than when it does. In two recent cases of gun-shot injury the eyeball was penetrated, but in both the globe was saved. The reaction from the trauma was surprisingly slight. In Dr. Ewing's case the shot merely grazed the eyeball and yet the damage done was very great.

Dr. Alt replied that sometimes we see very slight results from severe injuries; again we see very grave results from seemingly small injuries. The fact that the shot passed through the eye and caused no great trouble might be explained on the ground that it was aseptic. In regard to shots through the orbit, he had seen a number of cases in which the eye did not show any signs of serious injury, but when the optic nerve had been torn and blindness resulted.

In reply to Dr. J. F. Shoemaker's question as to why the development of the sympathetic irritation in this case, Dr. Ewing said he did not know. He told of a case that had been operated on for cataract. The other eye was fairly good. The eye which was operated on did not do well in the care of the oculist who had charge of the case, and the patient finally came to St. Louis. The patient could not bear any light upon the well eye. The other globe was tender. There seemed to have been no suppuration, but considerable iritis and a general going to pieces of the whole globe. After the removal of the diseased eye by Dr. Post the other eye immediately became quiet and could readily bear the light. It was

the same way with this boy. He could see normally, but could not stand the light. After the removal of the injured eye he could easily stand the light with the other eye, that same afternoon following the operation.

J. G. CALHOUN.

**REPORT OF THE EYE, EAR, NOSE AND THROAT
SECTION OF JACKSON COUNTY MEDICAL
ASSOCIATION, KANSAS CITY,
FEBRUARY 9, 1911.**

Papilloma of larynx.

Dr. J. W. Beil reported case of papilloma of larynx—and with post mortum specimen of same. Child dying at hospital night prior to date set for operation. The growth suddenly obstructing respiration. Patient was a child of six years.

Dr. O. C. Sheley, of Independence, presented specimen—removed post mortum, infant. When doctor approached to examine the child it began to cry and struggle, the growth was forced into a position occluding the respiratory tract and death quickly followed.

Discussions following these reports were very instructive as many personal experiences and reports were called out.

Macular hemorrhage.

Dr. T. S. Blakesley presented a clinical case—Macular hemorrhage. Young German of temperate habits with good family and personal history. Cause of the hemorrhage could not be determined. The only symptom (subjective), was that of loss of central vision. Dr. Blakesley said he had so far given no treatment. The uniform expression of members of the section was to employ iodides with a hope of securing early absorption if possible, before new-formed permanent tissue should take place.

Inter-relation of Diseases of the Eye and Nose.

Dr. J. S. Weaver read a paper—Inter-relation of Diseases of the Eye and Nose. It was carefully prepared, showing that a great deal of work had been done in its preparation. He discussed the subject not only from personal experience, but reviewed recent literature. The essayist held, in the main, that the two organs being so intimately associated that it was difficult to do one branch only.

Dr. Jas. Kimberlin, in discussing the paper from the stand-

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point of the ophthalmologist pointed out that the clinical picture usually indicated the seat of the trouble. If of nasal origin, the pain will be during the early part of the day. If ocular, during the latter part of the day.

Dr. Hal Foster in discussing the paper from the standpoint of the Rinologist agreed with the essayist in that many eye diseases were of nasal origin, but that there is no war between the two specialists, but one should assist the other and work hand in hand.

The general discussion of the paper followed: Dr. C. W. Gosney disagreed with the suggestion of trachoma being of nasal origin—even though a large per cent of such cases had adenoids. Dr. W. H. Shultz held that if ophthalmology be linked with any specialty, let it be that of neurology in preference to Rinology. Others discussing the paper were J. W. Beil, F. L. Sanders, W. M. Reed, Hugh Miller and H. G. Tureman, each taking up some special point presented in the paper.

HUGH MILLER, Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the Medical Society's rooms, on Thursday, February 9, 1911, under the chairmanship of Mr. Gustavus Hartridge, vice-president.

Mr. Brewerton showed a case of symmetrical marginal corneal degeneration, and Mr. Grimsdale a patient with irideremia and deformity of lens. Mr. Higgins showed a patient on whom he performed his operation of dacryo-cysto-rhinostomy, and described the procedure. The chairman and Dr. Hill Griffith discussed the case. Mr. Treacher Collins exhibited a case of wide-spread exudation internal to the choroid and beneath the retinal vessels, giving rise to a white reflex. Mr. Hepburn, in discussing the case, said he thought the condition as now seen was old and quiescent. He did not regard the changes as an exudate, but as an extensive fibrous tissue development the result of an exudate which had occurred earlier. The changes involved the choroid as well as the retina. He stated in detail the reasons for his opinion. Mr. G. Coats agreed with Mr. Collins that the condition was due to sub-retinal hemorrhage, commencing in the deepest layer of the retina, and breaking into the sub-retinal space, with subsequent organiza-

tion. Mr. Collins replied that he did not suggest it was now an active exudate. Mr. R. R. Cruise showed a case of central retinal detachment, probably tubercular.

A paper by Mr. Leslie Paton and Dr. Gordon Holmes was read by the former on Histo-pathology of Papilloedema. It was a preliminary account of their investigations into the pathology of papilloedema. Their work was based on the histological examination of 60 eyes, all from cases in the National Hospital for the Paralyzed and Epileptic, Queen Square. The conclusions they formed from these cases were that the so-called "optic neuritis" was a simple congestive oedema of the disc, and was not in any way an inflammatory phenomenon. Inflammation when it did occur was slight in amount, limited in its distribution, and secondary in its nature. The hemorrhages that occurred were in the main congestive, but partly due to stretching and rupture of small vessels by the swelling disc. The larger white patches that occurred on or near the disc were due to degeneration of the nerve fibres. This degeneration showed itself first by varicosities appearing on the nerve fibres, which later swelled up into elliptical or globular bodies known as "cytoid bodies." These might lose their connection with the nerve fibre from which they developed, and consequently undergo fatty degeneration. The smaller bright white spots arranged in fan-shaped fashion between the disc and macula, were due to oedema raising the membrana limitans interna into vesicles. The changes produced as the disc became atrophic were, (a) occlusion of the smaller vessels by endothelial proliferation and adventitial thickening in the walls of the larger vessels (b) a glial proliferation which varied in intensity with the degree of atrophy, and (c) proliferation in the mesoblastic tissues round the blood vessels and without, forming the lamina cribrosa. The writers considered that the hypothesis which best explained all the known facts of tumor papilloedema was that, owing to the rise of intra-cranial pressure there was a communicated rise of pressure in the nerve sheath. The portion of the central vein lying in the nerve sheath behaved, in response to this raised pressure, like a cerebral vein, and the blood pressure in it was consequently raised to the same extent. This produced a congestion of all the connections of the central vein distal from that point. In addition to causing venous congestion the raised intravaginal tension obstructed the normal drainage of lymph from the disc and nerve, and caused a lymph stasis, so that there was

both an increased output and a diminished drainage. The tissue tension in the nerve itself was raised so there was no marked difference between intravenous pressure and tissue pressure until the lamina cribrosa was reached; also the range of action of the lower normal intra-ocular tension. The paper was illustrated by a number of lantern slides.

Mr. Johnson Taylor asked whether the authors had had any case early enough to confirm what was clinically found; viz., that the earliest evidence of optic neuritis was in the upper and inner part of the disc. He had under care at present a case which confirmed that. Dr. James Taylor spoke appreciatively of the extensive nature of the research. It occurred to him that it might lead to a revival of the old method of tapping the optic nerve from the front, with the view of relieving the oedema. If so, that would cause one to view more hopefully cases of extreme papilloedema. Dr. Gordon Holmes, in reply to Dr. Taylor, said the method mentioned would only be feasible if a fistula were left in the sheath, to allow the cerebro-spinal fluid to drain away. Mr. Paton replied that the papilloedema nearly always commenced at the upper border first, and later in the lower. But when only the upper border showed oedema, there was shrinkage of the tissue. The disc looked normal, but there was evidence of oedema commencing at its upper edge.

C. DEVEREUX MARSHALL, F. R. C. S.

A Scholarship in Ophthalmology has been founded by William A. Du Bois, Mathew B. Du Bois and Katherine Du Bois, sons and daughter of Dr. Abram Du Bois, who have presented to Columbia University the sum of \$18,000, to be used as a fund for this purpose. This is to be known as "The Doctor Abram Du Bois Memorial Fund." The scholarship is open to graduates of the College of Physicians and Surgeons, who have satisfactorily completed a term of service in an eye hospital, and who have given evidence of serious intention of pursuing ophthalmology as a specialty. The holder of the scholarship is expected to devote himself to post-graduate studies, preferably of a scientific character connected with ophthalmology in foreign and American universities. The income amounts to about seven hundred dollars (\$700) a year.

The bestowal of this scholarship is in the hands of a committee consisting of the Professor of Ophthalmology, the Dean of the Medical School and Dr. Edward L. Partridge.

CORRESPONDENCE

SIX WEEKS EXPERIENCE IN SOME NEW YORK EYE HOSPITALS.

New York City, February 1, 1911.

To the Editor of THE OPHTHALMIC RECORD:

Dear Doctor: I have been spending the last month or two in New York visiting the different eye and ear hospitals, and it occurred to me that perhaps the readers of THE OPHTHALMIC RECORD might care to hear from this large cosmopolitan city, that furnishes such an abundance of eye work.

I have spent most of my time in the New York Eye and Ear Infirmary, corner of Second avenue and Thirteenth street; the Manhattan Eye, Ear and Throat Hospital, 210 East Sixty-fourth street, and the New York Ophthalmic Institute, 46 East Twelfth street, and have been treated with never-failing courtesy by all the officials of these hospitals. The last named is now purely an ophthalmological institution—at least Arnold Knapp himself does nothing but ophthalmic work there.

One of the operative measures that interested me in New York is Knapp's modification of Smith's intracapsular extraction of cataract. It seems that although Knapp, like a number of other Americans, has made the pilgrimage to Jullundur and was given an opportunity to practice on a large number of patients, came to the conclusion after returning home, that while this operation might be the best one for East Indians it was not necessarily the best for American patients. Nevertheless, he fully recognized the advantages of extracting the lens in its capsule and has put into execution certain modifications of Smith's operation that he believes are better adapted to the needs of the people of this country. He uses an ordinary eye speculum and makes the usual incision and iridectomy. He then introduces into the anterior chamber a Kalt capsulotomy forceps and with it grasps the anterior capsule. As you know, Kalt's forceps have no sharp teeth, but in lieu of them a little spoon-shaped concavity on the inner side of each point. This arrangement enables them rather to grasp than to cut into or tear the anterior lens capsule. After catching a firm but gentle hold of the capsule in this way, Knapp endeavors, by a careful

rocking, or to-and-fro motion, to rupture the zonular attachments of the lens and capsule. When this is accomplished he withdraws the forceps and with a large olive—or bullet-pointed strabismus hook makes the well-known pressure movements of Smith on the lower portion of the cornea. These to-and-fro movements are, however, not persisted in so long or so vigorously as advised by Smith in his original procedure.

Knapp uses this instrument instead of a spoon (while depressing the upper edge of the wound with a spatula) for, even after the capsular attachment is broken, it is not easy to force the upper periphery of the lens and capsule forward through the corneal opening. After a little the upper margin of the encapsulated lens appears in the wound, and then the delivery of the whole body is easy.

Knapp requires no trained assistant during these procedures; nor the constant looking up on the part of the patient as advised by Smith. He keeps the speculum in during the entire operation; and there is no somersault of the lens. Unless my memory fails me, he has performed this operation about fifty times and is well pleased with it. He says that in the majority of cases the capsule does not break when the Kalt forceps are applied, but if it does, he simply delivers the lens in the old-fashioned way. I was surprised to learn that the capsule will stand so much manipulation without rupture.

I think the Arnold Knapp method should be given a trial for, if the lens can be *safely* delivered in its capsule, it certainly is the ideal form of cataract extraction. I saw some of Knapp's results and they were all that could be desired.

I have seen no one else in New York do an intra-capsular operation. Everybody admits that it is the ideal operation when properly performed, and they all approve of Smith's work, but no one seems to think it is a justifiable operation in the hands of the surgeon of limited experience. For the tyro it is believed to be too risky, and requires that specially developed skill that is the outcome of large experience only, to render it a really safe procedure.

I have witnessed but one simple extraction here, in over six weeks of daily observation. In fact, when it is possible to control the patients most operators uniformly resort to the older and probably safer "combined" extraction, with the performance of a

preliminary iridectomy. It is my impression that ninety per cent of ophthalmologists, if afflicted with cataract, would elect to have a preliminary iridectomy performed and the lens later, in the usual fashion, extracted. If this is true why not give our patients the benefit of the same practice?

I was pleased to find Stedman Bull using the same method that I prefer. He does a preliminary iridectomy and after lacerating the capsule, *removes the speculum*. He then makes downward pressure of the thumb or finger on the globe through the upper lid. This act serves to open the wound. Then by upward pressure with a spoon over the cornea, he easily expresses the lens without loss of vitreous. He believes that the removal of the speculum reduces to a minimum the risk of vitreous discharge.

Peter Callan and a few others operate in practically the same way. I saw Callan do one operation, without speculum, using only the Angelucci fixation; the forceps not only steadied the eye-ball, but kept the upper lid well out of the way. This operator in his cataract extraction instructs the patient to look up constantly, after the manner of Smith, believing that, thereby, he minimizes the loss of vitreous. Most of the surgeons in New York instill a little argyrol solution into the eye after such operations as cataract, iridectomy, etc., while Weeks uses a 1-5000 bichloride ointment in the same way—just as some of the operators use White's ointment in St. Luke's hospital, Chicago.

At the Eye and Ear Infirmary they wash out lens matter in both traumatic and senile cataract extraction, with warm, normal salt solution from a small glass pipette attached to a rubber bulb, as we have been doing in St. Luke's Hospital for many years. The end of the pipette is bent at a sharp angle, and drawn to a fine point, so that it can be introduced into the anterior chamber without effort. Anyone who has made use of this simple method will testify how readily the lens matter flows out and how well the pupillary area clears up. Certainly, much less traumatism results than when the lens matter is *squeezed* out.

I saw David Webster apply a Kalt suture in a cataractous eye, where he feared fluid vitreous. A fine black silk suture was used, doubled needled, with sharp, small needles. One end was passed through the upper portion of the cornea horizontally, and the other end was passed through the conjunctiva, just above the sclero-corneal margin, also horizontally. The needles were removed, and

the looped thread was allowed to hang loosely. The usual incision was then made, care being taken not to cut the thread, and the lens was removed. The suture was then tied, rather loosely, as much traction would of course be undesirable. In this particular case, the vitreous was not fluid, and the stitch was unnecessary, but it can readily be seen, that to be able to quickly close the wound, in case of escaping vitreous, would be a great advantage. Webster says he has only used the stitch three or four times, but has never had cause to regret it.

It must be gratifying to Chicago surgeons who prefer it, to know that the Lagrange operation for glaucoma is very popular in New York. Weeks and others seem to have such good results following it in chronic simple glaucoma, that this terrible disease seems to have lost many of its terrors for them. Weeks tells me that he has been able to control the disease in about 80 per cent of his cases and this certainly is a remarkable statement when emanating from a man of that operator's well-known skill, honesty and caution. He says that in about this proportion, vision does not decrease and the fields of vision do not further contract. He makes his incision well back in the sclera, with a Graefe knife, which he feels reaches the anterior chamber angle better than a keratome. His incision is not long and the iridectomy not very broad. He carefully lays back the conjunctival flap and freely exposes the scleral incision. With scissors he excises the upper convexity of the lower lip of the incision, carefully replaces the iris with a spatula and then returns the conjunctival flap to its normal position. A light bandage is applied. In 24 hours he prescribes a 2 per cent solution of muriate of pilocarpine, as being less irritating than eserine. After three days he institutes, daily, light palpation-massage (as if he were testing the tension) for the purpose of keeping the scleral opening patent.

Peter Callan has used in certain glaucoma operations a small instrument for punching out a piece of the sclera. It resembles the trephine devised by Fergus and acts very nicely.

I was interested in a case of sub-acute glaucoma operated on by Gruening. The woman had positively no anterior chamber whatever, and Gruening did not dare undertake an iridectomy (for fear of injuring the lens), although he very much prefers this operation. He also feared to make an anterior sclerotomy, on account of a possible intra-ocular hemorrhage. He therefore

made a cyclo-dialysis, which temporarily, of course, reduced the tension. Within three days, however, tension and pain recurred, and another cyclo-dialysis was performed. The operations were made under cocaine, supplemented by subconjunctival injections of cocaine. In about ten days she was dismissed, apparently cured, so far as pain and tension were concerned. In operating for glaucoma where the anterior chamber is very shallow, and where he wishes to keep the eye-ball very steady, Gruening catches hold of the conjunctiva over the tendon of the internal rectus, and very close to the corneal margin, instead of over the tendon of the inferior rectus, as is usually done. He does this, because at this place, the conjunctiva is strongest, and least likely to tear.

I was interested to see Edgar Thomson use a protective (Kuhnt) conjunctival flap after excision of a prolapsed iris following a penetrating wound of the cornea. I believe this procedure should be resorted to more frequently than it is.

I saw Lambert remove a pterygium from its bed in a way that seemed to me both practical and efficient. He trans-fixed it with a needle, armed with a strong but fine thread.* This he passed as close to the sclera as possible. An assistant pulled the eye-ball toward the nose with forceps, and the operator, seizing one end of the thread with each hand, gently, but firmly see-sawed the suture until it cut its way out to the extreme end of the growth.† The affected area of the cornea remained clear and transparent. The usual McReynolds operation followed.

I was glad to be able to demonstrate my method of eyeball enucleation several times at the New York Eye and Ear Infirmary. This consists as you know in drawing the muscles and conjunctiva together in a single purse-string catgut suture. They have been using here the old Ferrall or Bonnet operation, with its subsequent hollow socket disfigurement. My method seemed to please the surgeons, and especially the younger surgeons. There will always of course be older and more conservative men, who will adhere to the old method, but it is difficult to conceive of arguments which hold to the idea that an enucleation which allows all the muscles to shrink back into the socket, can produce as good a stump, as *some* operation which sutures muscles and conjunctiva firmly together.

I have seen no one here do the Worth operation for advance-

*As performed by Aethius about 700 years ago

ment, although we think highly of it in Chicago. At the New York Eye and Ear Infirmary, they prefer the Reese operation in advancing either the internal or external rectus tendon. For instance a long, vertical conjunctival incision is made and the tissues well undermined. The capsule of tenon is then opened and the tendon brought forward on a hook. A Prince's advancement forceps is then substituted for the hook, and passed as far backward as the operator thinks advisable, and locked. The overlying conjunctiva, however, is *not* included in the grasp of the forceps. A double-needled thread is then used to suture the *center* of the tendon, conjunctiva, etc., the needles being entered between the forceps and the canthus. They are inserted quite a long way back, in order to produce the desired shortening. The tissues are *quilted*, both needles being entered from within outwards, thus leaving the loop on the inner surface of the muscle. Two more single needled sutures are then employed, one for the upper portion of the muscle and conjunctiva and the other for the lower portion. These sutures are not *quilted*, but are simply passed once through the muscle and conjunctiva, from without inwards. The tendon (but not the conjunctiva) is amputated between the canthus and forceps great care being taken not to cut the sutures, which should, of course, have been set far enough back to forestall any possibility of their pulling through the tissues when traction is exerted upon them. The two central branches of the central suture should now be fastened separately in the sclera, at about the point of the former attachment of the tendon. The under half of each of the lateral sutures is now attached to the upper and lower portions of the sclera, and the three sutures are firmly tied. The muscle is reattached in its former, natural position, and there is very little puckering and thickening. The amount of amputated muscle represents the amount of advancement. Some operators precede this operation by a carefully performed tenotomy of the opponent tendon. The operation commends itself to me and the results I have seen are certainly good.

At the Manhattan they perform a modification of Landolt's operation. The usual vertical incision of the conjunctiva and undermining being accomplished, the capsule is cut, and the tendon exposed on two hooks, one pulling one way and the other pulling the other, so as to put the tendon a little on the stretch. A double-needled suture is then passed through the tendon, as far back as is

deemed expedient, through the lower portion of the muscle. This needle is passed from within outwards. Another double-needed suture is likewise passed through the upper portion of the muscle. The conjunctiva is then drawn forward and a double-needed thread is quilted through the muscle and conjunctiva at their *middle* portion, from within outwards, leaving the loop on the inner surface of the muscle. The tendon is then severed from the eyeball, as far back toward the sutures as possible, and the tendinous stump also severed close to the eyeball. The central needles and the lower half of each lateral suture are now passed through the sclera. The upper half of each lateral thread is then passed through the conjunctiva, from within outward, and the three sutures are securely tied. The operation yields good results and it will be seen that the Reese operation and the modified Landolt operation are essentially the same procedure. They are both satisfactory operations and I am not at all sure but that they are superior to the Worth method, inasmuch as none of the muscular strands are tied to the exclusion of the circulation, the tendon is reattached in the natural situation, the puckering and thickening are slight and either operation is easier of performance than the Worth procedure. In both operations the central suture is of course the one upon which the greatest dependence is placed. The two lateral sutures, while important, are not so essential.

As in Chicago, ophthalmologists here have been experimenting with the Schiotz tenometer, which seems to measure accurately and uniformly the intraocular tension, and to enable ophthalmologists to adopt a language concerning the condition, which may be readily understood the world over. The eye being cocainized and the cornea vaselinized the base of the instrument is placed directly on the cornea and pressure made. The readings on the scale indicate the degree of tension. This ingenious and accurate instrument comes highly recommended by Fuchs and other observers of similar caliber.

Both at Knapp's Hospital and at the Manhattan Eye and Ear Infirmary they perform Toti's operation for partial obliteration of the tear sac; the object being, to remedy pathological conditions without entirely destroying its functions—as is done by a total extirpation.

A curved incision, nearly an inch in length, is made at the inner angle near the bony edge of the orbit. The periosteum is

turned back, and the edges of the wound widely separated. The margin of the orbit is then chiseled away until the sac is exposed. The identity of the latter is established by passing into it a Bowman's probe, by way of canaliculus. The anterior portion of the sac is excised and the duct curetted by means of a small, sharp spoon. A fine drainage tube is inserted from the sac into the inferior nasal meatus, is fastened to the upper lip by adhesive plaster and kept in situ for a few days. The wound is then carefully sutured and a pressure bandage applied. Those who have done the operation seem to be well pleased with its success, although its exact value is by no means as yet established. It is not a difficult operation and is certainly worthy of a trial. Most of the surgeons here extirpate the sac in the classic fashion. By the way, and in this connection, I saw Gruening remove most skillfully a lachrymal gland in a woman who had previously had her sac extirpated, but who still suffered much from lachrymation. Gruening has severed his connection with Mount Sinai Hospital and does practically all his public work at the New York Eye and Ear Infirmary. Before beginning the Toti operation, a gauze sponge, tied with a long suture, which comes out through the nose, and is thereby kept in the posterior nasal fossa, is placed in position, and carefully kept there, by keeping the suture tightly held by an assistant. The operation is very bloody, and without this precaution, much blood would inevitably flow down into the larynx, etc.

They do the Kuhnt-Heisrath operation here (just as Dr. Casey Wood and others have been doing it for many years in Chicago) a great deal, for the cure of intractable cases of trachoma. Most operators remove not only the tarsus, but its conjunctiva conjunctival covering as well. The reports of the results are excellent. The operation is, of course, too well known to justify any description of it. In operating upon the lower lid the tarsus is not removed. They seem here to have found a good use for the old Weeks bifurcated advancement forceps. They use them in the Kuhnt-Heisrath operation to securely hold the edge of the lid. The forceps are strong, and the biting end is broad, and the forceps serve an excellent purpose in this operation.

I was much interested in Nicati's modification of Gillet de Grandmont's operation for ptosis that I saw at the New York Eye and Ear Infirmary, and which, it is claimed, yields excellent

results. The lid was everted on a broad chalazion forceps, to control hemorrhage. An incision was made near the margin of the lid, cutting through both conjunctiva and tarsus. Another incision followed at the upper edge of the tarsus and conjunctiva and tarsus were both dissected out, just as one does in a Kuhnt-Heisrath operation. Three double-needled sutures were then passed through the tendon of the levator muscle as high up as was thought necessary, and overlying conjunctiva—horizontally and not vertically. The tissues were, in this way, closely interwoven. The superfluous muscle and conjunctiva were then cut away. There is, of course, a rim of tarsus left at the edge of the lid. The six needles were then brought out at the edge of the lid, through the tarsal remnant, and tied in pairs, making three knots situated so far outward at the free border of the lid that they would not scratch and irritate the eyeball. Plenty of bichloride ointment was used in the subsequent dressing. The operation is certainly simple enough and easily performed, and it produces no dermal disfigurement since the skin is not involved.

I was much interested the other day in an operation for ectropium I saw at the New York Eye and Ear Infirmary. An incision was made in the lower lid, in the lid margin, extending from almost one canthus to the other. From this beginning, the lid was split into two parts. A triangular piece of the conjunctival part was cut away, and the aperture stitched together. The marginal incision at the external canthus, was then extended downwards, and a triangular piece of the skin flap was cut away, and this aperture also stitched together. The lid looked well after the operation, and excellent results are claimed. This is the operation usually performed at this hospital.

In endeavoring to restore the cul-de-sac of a socket to enable a patient to wear an artificial eye they use the method of Weeks, at the New York Eye and Ear Infirmary, and with excellent results. The operation is simple enough, but bloody and tedious, as all such operations are. In operating on the lower portion of the socket for instance, they absolutely free the lower lid of all attachments, as far down as the lower orbital margin. This is done by knife and scissors. An egg shaped shield is then cut out of dentist's vulcanized rubber, small enough to allow of its insertion in the cavity, and yet large enough to stretch the cavity after its insertion. Four holes are made in its center by a hot strabismus

hook. These holes are made simply for the purpose of enabling the surgeon to remove the shield at will, by catching hold of it with a strabismus hook, and drawing it out. A Wolff graft is then cut out of the arm, from over the biceps muscle, where there is very little hair. This piece is of about the size and shape of a good sized egg. The under surface is thoroughly trimmed, so as to make the graft as thin as possible. The graft is kept in a wet, hot towel. Three double-needled sutures are quilted through the graft in a row, in about its medium line, the loops on its skin surfaces. The graft is then carefully inserted into the socket, skin side out, and the sutures are deeply passed down to the bottom of the newly made socket, and the needles are made to pass through the periosteum, at the orbital margin, to give the graft anchorage. The six needles are then passed through the upper portion of the cheek, and the graft is drawn into place and the sutures tied over gauze rolls. The entire graft is then smoothed out and gently tucked into position. One edge of the graft is sutured to the lid margin, and the other to the back of the socket. The shield is then forced into position, to keep the walls of the socket apart, and the graft in position. Bi-chloride ointment and a pressure bandage are applied. I saw two results, and was much pleased with them.

Entirely apart from this subject, I might say (for it interests ophthalmologists, as well as all other medical men) that the sentiment in New York, is that Ehrlich's 606 has not proven itself, at least, so far, as being worthy of all the praise that has been given it abroad. For some reason or other, it has failed to make "a hit," in this country. This may be due to a variety of causes, but at all events, medical men here, feel as they do in Chicago and other places, that it will be some time before this remedy is placed in its proper niche, in the list of therapeutic remedies.

Several surgeons employ a very powerful light that greatly facilitates operative work. The lamp consists of a long metal, nickel-plated cylinder, about $11\frac{1}{2}$ feet in length, and 2 inches in diameter, containing a powerful electric light with a convex lens at the end. It is suspended in front of the patient and can be swung in any direction. It may be mounted either on a bracket or a movable stand. In the latter form it costs about \$37.00 complete, and may be had from Kny, Sherer & Co., Hardy or Meyrowitz. To get the best effects the rooms should be dark, save

for this electric light. It certainly lights up the operative field beautifully, and in operations for secondary cataract I know of nothing that can compare with it.

One simple and useful convenience that I have noticed in the New York operating rooms is a covered pan of constantly boiling water near the operating table, kept hot by burning gas jets. When a surgeon wishes to use an instrument that has been forgotten, or if an instrument drops on the floor, or becomes otherwise contaminated, it is the work of but a few minutes to sterilize it by dropping it for a few minutes into this receptacle, so that valuable time is not lost and the patience of all concerned is not as sorely tried as it generally is under other circumstances.

One cogent reason why good work can be done here is because they retain the same operating room nurses, who in this way become familiar not only with all the details of operations and with all the instruments in the instrument cases but with each individual operator's peculiar needs and fancies. For instance, Miss Ehrhart, the head operating room nurse of the Eye Department in the New York Eye and Ear Infirmary, has been in that hospital for over 20 years, and she can assist at an operation as well as, or probably better than, any house surgeon. She is so thoroughly in touch with her work that she has invented several instruments and is, in her way, simply invaluable.

As is well known, Geo. S. Dixon has been at the head of the Pathological Department of the Eye and Ear Infirmary for years. His work is prompt and dependable and his X-ray reports, especially his location of foreign bodies, cannot be excelled. The presence of such a man in an Eye Hospital greatly facilitates good work.

The reputation of New York institutions attracts a superior class of house surgeons and this must also be included in the factors that make for success. I must say, for the benefit of these young men, that it seems too bad that they should have to spend so many months of their internship in giving anaesthetics. Hospitals should, as in Great Britain and elsewhere, employ trained anaesthetists. House surgeons should not be required to devote so large a proportion of their time as internes to this uninteresting and unprofitable task—one *better* performed by a specialist. The house surgeons in these New York institutions do a great deal of operating, so that by the time they complete their service, they

become quite proficient in operative work. I noted, this year, one house surgeon who in particular showed himself to be a most dextrous eye operator, and I am sure that he became so as the result not only because of natural ability and industry but of training and observation in the hospital to which he was attached.

I have been impressed with the great range of work performed here by the eye, ear, nose and throat surgeons. Not only do they (of course) do all kinds of work involved in these specialties, but everything appertaining thereto. They do not call on outside surgeons to do the various kinds of brain work, secondary to eye, ear, nose and throat diseases; they do such operations themselves. They do neck surgery such as jugular excisions, infected glands, goitre and carotid artery ligations. They perform their own nerve anastomoses for facial paralysis, etc., etc., This breadth of conception in these special departments, is of course not by any means confined to New York, it may be found in Chicago, San Francisco, Philadelphia and various portions of our country, but wherever found, it is inspiring, and worthy of commendation. We should constantly broaden out, and watch ourselves, lest we fall into circumscribed pathways.

I am well aware that there is not much that is new in this letter; indeed there is not much to be seen that is strictly new anywhere. Probably I have dwelt too long on descriptions of procedures, that are well known in all portions of the world, but I thought that perhaps, your readers might be interested in the daily hospital work of well known men, with brief details as to the operations which these men seem to prefer in their routine practice. Men are much the same the world over; some are progressive, others conservative; some are broad, while others are narrow; it makes no difference whether they live North, South, East or West. We in Chicago do about the same class of work, as they do in New York. We lead them in some things, while they lead us in others. We can teach them, but they can also teach us. On the whole, I have had a most profitable sojourn here, and desire to cordially thank my friends and acquaintances here, for the many courtesies they have extended to me.

Yours truly,

FRANK ALLPORT.

Notes and News

**PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR.
FRANK BRAWLEY, 7 WEST MADISON STREET, CHICAGO.**

Arthur Brückner of Königsberg, Germany, has received the title of Professor of Ophthalmology.

The New York Eye and Ear Infirmary has received \$20,000 by the will of the late Mrs. Emily H. Moir.

Prof. J. M. Baudera, a noted ophthalmologist of Mexico, died recently, aged 73.

Dr. George F. Keiper, Lafayette, Indiana, was recently elected vice-president of the Tippecanoe County Medical Society.

An examination will be held July 17, 1911, at Oxford University, Oxford, England, for the diploma in ophthalmology.

Dr. Edmund Burwell of Seattle, Washington, has received the appointment of ophthalmologist to the City Hospital.

Mr. R. Russell Thomas has recently been made honorary Ophthalmic Surgeon to the Cardiff Infirmary.

Dr. Albert W. Elmer of Davenport, Iowa, was elected president of the Scott County Medical Society at the annual meeting held in Davenport, January 2.

Dr. Adolph Kraemer, an ophthalmologist of San Diego, Cal., died at his home in that city on January 24, aged 46.

Mr. A. H. Rayon Downay has been made honorary Ophthalmic Surgeon to the Schools of the London Society for Teaching and Training the Blind.

Dr. Emile S. Keitz has been appointed to the staff of the Tonro Infirmary in New Orleans, in the Eye, Ear, Nose and Throat Department.

Dr. Chas. H. May, of New York, has recently received the appointment of consulting Ophthalmologist to the fourth division of Bellevue Hospital.

Dr. Clark W. Hawley, of Chicago, has been seriously ill with influenza complicated by erysipelas, but is now recovering.

It is said that Dr. George Reinherz, of East Boston, and Dr. Elmer L. Brine, of Boston, have been fined \$50.00 each for failure to report cases of ophthalmia neonatorum. Dr. Brine, however, is said to be on probation, the fine having been suspended.

Dr. Louis Borsch, of Paris, formerly of Philadelphia, has been elected Ophthalmic Surgeon to the Trinity Lodge Hospital (American) of Paris, to fill the position left vacant by the death of Dr. Bull. Dr. Borsch was for a number of years chief surgeon of clinic in the De Wecker clinic of Paris.

On February 24, a dinner was given to Dr. Leartus Connor at the Detroit Club in Detroit, Mich., in commemoration of the fortieth anniversary of his practice in Detroit. The committee in charge of the dinner consisted of Drs. J. E. Emerson, A. P. Biddle, A. D. Holmes, Geo. T. Frothingham and B. R. Schenck. Dr. Walter P. Manton was toastmaster. The speakers were Drs. Chas. B. Stockwell, of Port Huron, Mich., L. E. Maire, Frank B. Tibbals, Guy L. Kerfer and Leartus Connor.

Mr. Sydney Stephenson, Hon. Secretary, announces that the Oxford Ophthalmological Congress will assemble at Keble College, Oxford, on Wednesday, July 12th next, and that the meeting will be held on Thursday, the 13th, and Friday, the 14th, of July.

If there be any demonstration that you are willing to give, or any exhibition that you are desirous of making, please communicate direct with the Master of the Congress, Mr. R. W. Doyne, 30 Cavendish Square, London, W.

According to the Ophthalmoscope, an Institution known as the Eye and Ear Clinique, has been established in London, to care for that class of patients who cannot afford the usual fees. Half-a-guinea is charged for the first attendance and ten shillings for subsequent visits. The plan has been advertised in the public press and after extended investigation the British Medical Association is said to have removed from the Medical Register the name of Mr. James Forrest, M. B., B. S., Edinburgh, who is associated with the enterprise.

The Ophthalmologists of Pennsylvania have taken a firm stand on the question of licensing Opticians. The subject has been presented to the medical profession of the state in a very convincing and thorough manner. Every state which has passed optometry legislation has seen evil results follow. The legal approval expressed by a state license is bound to impress the average person and make him believe that the optometrist is perfectly competent to care for all eye diseases. In some states this class does not hesitate to appropriate the title of Doctor, wilfully misleading the public.

Ophthalmologists are frequently accused of harboring an ulterior motive in opposing optometry laws, when if the facts were better known, these opticians allow many eye cases to progress until a long period of treatment or operation is required, which brings a much greater financial return than if the case had been treated in its incipency. The oculists of Pennsylvania, in stating the facts in this matter, have given brief histories of actual occurrences illustrating the dangers attending this short-cut to the practice of medicine. The following is a part of the literature which has been sent out by the Committee on Refracting Opticians of the Medical Society of the State of Pennsylvania.

To the Members of the Medical Profession:

Your attention is respectfully called to the following facts:

That the practice of medicine and surgery, both general and special, should be in the hands of those who have been graduated from reputable medical colleges and have been licensed by the State Medical Examining Boards is evident. Therefore, it is eminently proper and urgently important that the efforts of those who have not received a medical education to obtain legal recognition of their treatment of diseases and affections of the human body, in whole or in part, should be opposed.

The eye is an integral portion of the body, and is subject not only to diseases peculiar to itself, but frequently participates in, and gives evidence of, affections of the cerebro-spinal, cardiovascular, respiratory, renal and digestive systems, as well as those of the genital organs, the liver, accessory organs of nutrition or ductless glands, accessory nasal sinuses, blood, etc.

Anyone who is unacquainted with this relationship and its effects evidently is unfitted to examine an eye for the purpose of correcting its defects, no matter whether this correction requires

optical, surgical or medicinal therapeutics. He who is medically untrained is liable to fail to recognize, on the one hand, for example, glaucoma, or on the other, an albuminuric retinitis. In the first instance he endangers the patient's eye-sight, in the second his life.

It therefore follows that a proper understanding of ocular therapeutics and of the adaptation of lenses for ocular disorders requires the skill of one who is medically trained in the best sense of that term.

The measurement of errors of refraction, anomalies of accommodation and of ocular motility, with or without the use of drugs, is not a simple mechanical procedure, but represents one of the most important therapeutic measures in the practice of medicine, and must not be lightly undertaken by anyone who is uninformed in the matter we have described.

In our opinion, it is the province of the optician to manufacture prescribed lenses and to attend to their mounting and suitable mechanical adjustment. It is not, in our opinion, the province of the optician, nor that of any other person unprepared by medical education, to attempt to diagnosticate diseases of, or to prescribe lenses for, the human eye.

We request your earnest attention to this vital subject, and ask your aid in uniting the profession of medicine in wholesome opposition to the efforts of "refracting opticians" (so-called "optometrists"), "lense specialists," jewelers and all others who claim to be able to examine eyes scientifically and to prescribe glasses, to gain legal recognition of a practice which is beyond their province.

For your further information on this subject, your attention is called to the *Pennsylvania Medical Journal*, for October, p. 33, and November, p. 122.

G. E. de Schweinitz, M. D., University of Pennsylvania.

Howard F. Hansell, M. D., Jefferson Medical College.

L. Webster Fox, M. D., Medico-Chirurgical College.

W. W. Speakman, M. D., Hahnemann Medical College.

William W. Blair, M. D., Pittsburg.

Clarence M. Harris, M. D., Johnstown.

Edward B. Heckel, M. D., Pittsburg.

William Campbell Posey, M. D., Philadelphia.

Lewis H. Taylor, M. D., Wilkes-Barre.

James Thorington, M. D., Chairman, Philadelphia.

Dr. Etienne Ginestous of Bordeaux, France, has been given the Clarens prize of 400 francs by the decision of the Académie de Médecine.

Dr. John F. Byington, of Battle Creek, Mich., who has been very ill with erysipelas for some time, died January 27. Dr. Byington held the post of Ophthalmic and Aural Surgeon to the Battle Creek Sanitarium.

Dr. A. Trousseau, of Paris, was recently killed in an automobile accident. He was not only prominent as an ophthalmologist, but was chief of the medical staff of the Rothschild Foundation.

A new special society has been organized in Minneapolis, known as the Minnesota Academy of Ophthalmology and Otolaryngology. Dr. Howard McL. Norton was elected president, Drs. J. W. Chamberlain and John F. Fulton of St. Paul, vice-presidents; Dr. Elmer H. Parker, of Minneapolis, secretary-treasurer.

CORRECTION.

In Dr. Edmund E. Blaauw's article *Contusio Bulbi*, published in February number of the *OPHTHALMIC RECORD*, on page 59, in line 1, for *exhaustic* read *exhaustive*; on page 6, line 6, for *straining* read *staining*.

Book Reviews

REFRACTION AND MOTILITY OF THE EYE, with chapters on color blindness and the field of vision, designed for students and practitioners, by Ellice M. Alger, M. D., Adjunct Professor of Ophthalmology at the New York Postgraduate Medical School. Ophthalmologist to the New York Dispensary, etc. With one hundred and twenty-two illustrations. Published by F. A. Davis Company, Philadelphia. 1910. Price, \$1.75.

HAND BOOK OF DISEASES OF THE EYE, a text-book for students and practitioners, by Harry Caldwell Parker, M. D., Clinical Professor of Ophthalmology, Indiana University School of Medicine, Indianapolis, Indiana, etc., etc. Illustrated with 115 text engravings, a half-tone frontispiece and five full-page chromolithographic plates, with 26 figures. Published by F. A. Davis Company, Philadelphia. 1910. Price, \$2.00.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)	J. R. Hoffman (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
810 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honore Streets,
Ills. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Poli.: Chicago Policlinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX

CHICAGO, APRIL, 1911

NO. 4, NEW SERIES

TOXIC PARALYSIS OF ACCOMMODATION.*

HOWARD F. HANSELL, M. D.

PHILADELPHIA.

The accommodation is accomplished by the action of the circular and radiating fibers upon the lens and possibly the choroid. If the corneal limbus is the fixed point contraction of the radiating fibers means the dragging forward of the posterior pole: if the posterior pole be the fixed point it means the backward displacement of the limbus with relaxation of the suspensory ligament. Both sets of fibers are innervated by the ciliary branches of the third nerve and by the filaments of the sympathetic system after they have passed through the ciliary ganglion. Beyond the regulation of the vascular supply in the ciliary region it is not known that the sympathetic nerves have any influence upon the contraction or relaxation of the ciliary muscle. The iris and ciliary body, being essentially different only in their form and position, are usually associated in their physiologic and pathologic action. Paralysis of the one muscle independently, when due to central causes is ascribed to nuclear or fascicular lesions. Such lesions are rare. Commonly the two muscles are affected together and by the same causes. Observation in reports of absolutely independent paralysis may not always be accurate. The determination of the power of accommodation by small test letters selected by accident or according to the printers scale of sizes and by testing both eyes at the same moment is less accurate than the method suggested by Duane (OPHTHALMIC RECORD, August, 1909). A disc 38 mm. in diameter and covered with velvet is set in a ring like that in which the glasses of the trial case are mounted. The ring and its handle are blackened, on the center of the disc is glued a white card 3 mm. by 1.25 mm., which is exactly bisected by an engraved black line 3

*Read before the Section on Ophthalmology, College of Physicians, of Philadelphia, Jan. 19, 1911.

mm. long and 0.2 mm. thick. This line must be very sharp, and free from any irregularities. The card is brought up until the engraved line blurs, then withdrawn until it is clear, then carried back and forth once or twice, until we ascertain the precise point at which the blurring just begins. This will be the near point. The test is employed in conjunction with Prince's rule. Also determination of the size and reaction of the pupil cannot be precise according to our present methods.

The pupillometer, a round card consisting of perforations of graduated sizes is held against the temple and comparison made with the size of the pupil under examination. Such measurements cannot be more than approximately correct and differences of opinion among different observers are sure to occur. In view of the difficulties in estimating precisely the degree of involvement of the iris and ciliary body in paralysis, the reports of instances of paralysis without association, should be received with a few grains of allowance.

The dilation of the pupil which is so often conjoined with amblyopia from toxemia cannot be classified as toxic paralysis of the pupil. It is not dependent upon the affection of the peripheral or central nerves but upon the degree of amblyopia, reaching its maximum when all light perception is lost. The morbid changes on the optic nerve interrupt the circle of reflex pupillary reaction in its first part. No stimulus to the pupil—acting center in the brain, or in the cord can be carried by an optic nerve so deficient in function that it cannot convey sensations of light. Ciliary paralysis also does not occur in such cases. The accommodation cannot be determined because of the low acuity of vision without the use of a special instrument to measure the change of curvature on the anterior surface of the lens. It is probable, however, that the ciliary muscle, like the iris, is not involved directly.

The well known ocular changes in chronic alcoholic poisoning are amblyopia and central relative scotoma, without peripheric limitation of the field, followed in many cases eventually by partial optic nerve atrophy. Disturbances of the ocular muscles are not common, although authentic reports of cases have been published. Uthoff (2nd edition G. & S.), speaks of a monocular third nerve paralysis, including all of the extra-ocular and intra-ocular branches. The most frequent form of paralysis, he says, is double abducens as a complication or a symptom of peripheral neuritis. External

ophthalmoplegia and nystagmus are rare and serious complications. Isolated ophthalmoplegia interna (paralysis of the sphincter of the iris and the ciliary muscle), according to Uhthoff never occurs. The case I am about to report represents this condition of ciliary paralysis with corresponding pupil dilatation. No cause other than excessive and chronic alcoholism could be assigned, and yet it is possible that the symptoms were not due to alcohol at all, but formed a part of the symptom complex of epilepsy, of which the patient had been a victim for several years. Ciliary paralysis has not been mentioned among the symptoms of epilepsy. Pupillary dilatation during and following a seizure has been observed by many and described by Sommer (*Woch. f. Ther. u. Hygienes des Augens* March 18, '09), who mentions also fixidity of the pupils during an attack. After recovery in his case the pupils remained unchanged for a time and then became gradually reduced. The state of the accommodation is not mentioned. Rodier & Pansier (*Ann. o' Oculist* CXL, P241), examined 50 epileptics for eye symptoms and made no comments upon the size of the pupil or activity of accommodation.

My patient was a heavy drinker and moderate smoker, but presented none of the usual signs of tobacco and alcohol amblyopia. Other toxic substances such as carbon bisulphid, haschisch, lead, quinine, gelsemium, fish could be excluded from the etiology. M. W., a strong, healthy man of 34, noticed sudden loss of the power of reading soon after rising in the morning. The night before he had gone to bed in his usual health. The pupils at the time of my examination were widely but not fully dilated and responded to light. Distant and near vision was much blurred. R. V = 15/200, L. 20/200, restored to full acuity by R + 2, L + 1.75. With + 1.50 added he could read ordinary size type from at 14 inches to 16 inches—showing loss of more than one-half the power of accommodation. The next day the pupils were smaller and reacted to light, and in a few days accommodation had completely returned and he was able to discard the near glass. He had taken no medicine for some time previous to the attack, internally or externally. His throat was not inflamed. The principal glands of the neck had been swollen for years. He stated that in the past two years he had three attacks of unconsciousness lasting about ten minutes, which were described as epileptic in character. The first one was two years, the second one year, the last six weeks ago. No ade-

quate explanation of the ciliary and iris paralysis in this and in other cases of toxemia has been offered. The lesion is either a peripheral neuritis affecting the long ciliary nerves of each eye simultaneously and these only, or a nuclear disorder, probably hemorrhagic in character, in the anterior part of the third nerve nucleus which is suddenly compressed by a minute quantity of blood or edema derived from an engorged and leaking vein in the same situation. The suggestion of peripheral neuritis in this case seems to be untenable.

Case 11. R., aged 30, consulted me December 6th, 1910, and stated that on the previous afternoon when engaged in his occupation of designing for stained glass—fine close work—he noted vision was becoming indistinct and in a short time he was obliged to discontinue. Distant vision through the glasses he was wearing was not disturbed. His accommodation at the time of my examination was practically abolished, and he required + 250 to read ordinary type at the usual reading distance. The pupils were widely dilated and but slightly responsive to light. The only history I was able to obtain by close questioning was of a chronic specific urethritis. Dr. Horwitz, his attending physician, reported that he had found on several examinations gonococci in the urethral discharge.

His accommodation has slowly returned but not yet has it reached the amplitude normal for his age. All other sources of infection and the common causes of ciliary paralysis were excluded. Gonorrhoea is not mentioned in the etiology among the reports of cases that I have been able to find. Uhthoff speaks of infectious diseases but refers more particularly to diphtheria. The latter is a well known cause and many cases have been reported in the past 50 years. One of the most remarkable by Weigmann (*Klin. Mon. f. Augenh.* XLVIII, 1 April, 1910, p. 454), as follows: A healthy looking boy, aged 12, has a bilateral paresis of accommodation after severe diphtheria. It soon subsided in the left eye, but persisted over three years on the right eye, together with mydriasis. Excepting slight mydriasis, a complete restitution was observed after four years.

Only one case of such long duration has been published and that by Muhsam. The combined paresis of accommodation and of the sphincter pupillae suggested a nuclear affection, perhaps a hemorrhage, as both nuclei are close together and are supplied by the

same nutrient blood vessels. The diphtheria toxin may create various changes of the vascular walls which, as proven by postdiphtheric hemiplegias, may lead to extensive hemorrhages, as causes of paralysis of accommodation.

It is quite impossible to say surely that gonorrhoea was responsible in my second case, but in view of the recent exhaustive study of that disease and the variety of metastatic affections that have been traced to it, it may not be unreasonable to include ciliary and iris paralysis among them, the poison acting similarly to the poisons of other infectious diseases.

THE SMITH CATARACT OPERATION AND THE SO-CALLED BOMBAY CASES.

[At the request of Lieut.-Col. Smith of Amritsar, we publish the following letters, the first five having, from time to time, appeared in the *Indian Medical Gazette*. We do so partly because the readers of the OPTHALMIC RECORD are unlikely to have seen more than one of the original publications, partly since much of the matter referred to appeared at first hand in the RECORD and, largely, because it is our earnest desire to afford our readers all the assistance possible in arriving at a just estimate of the value of a procedure that has, in recent years, evoked more discussion and criticism in this country than any other ophthalmic subject.]

I. Letter from Major P. P. Kilkelly, M. B., I. M. S., May, 1910.

On the 27th of February, 1909, at my request, Major (now Lieutenant-Colonel) Henry Smith, Civil Surgeon, Jullunder, performed 23 cataract extractions at the Sir C. J. Ophthalmic Hospital, Bombay.

The results [given in tabulated form in the July number of the OPTHALMIC RECORD] analyze as follows:

No. of cases.	Vision.
1	6-15
2	6-20
7	6-30
3	6-40
4	6-60
5	Fingers 10 to 18 ft.
1	Moving bodies.

Accidents During Operations.

Capsule ruptured	5
Vitreous escape	2

Complications.

Incarceration of Iris in lips of wound. . .	5
Capsule tags in wound.	4
Vitreous opacities	9.
Iritis	7

This subject of extraction of cataract in capsule has been much discussed and some of the correspondence has been almost acrimonious. It is, however, impossible to disassociate Lt.-Colonel Smith's name from the operation; he has performed it so often and advocated its superiority so strongly, that criticism must of necessity refer to his particular methods of operating and his results.

The results of these 23 operations performed by Lt. Colonel Smith himself confirms me in the opinion I expressed at the Medical Congress last year when I invited Lt.-Colonel Smith to operate at the C. J. Ophthalmic Hospital.

I then stated that I had performed some 600 extractions in capsule, but that I had given up the operation as a routine procedure, being convinced that the best interests of the patient were not considered if it be done except in very exceptional cases.

It is clearly shown by these cases that accidents occur and a high percentage of bad results follows intracapsular extractions even when the operation is performed by Lt.-Colonel Smith himself, and for my part, I now feel that the average patient is exposed to an altogether unnecessary danger by the operation.

Lt.-Colonel Smith's method of operating is well described by Major Birdwood in the *Indian Medical Gazette* of January, 1910. I would only add the following remarks: Major Birdwood mentions that the iris is adjusted, after extraction of the lens, with a pair of iris forceps or a strabismus hook. I think this accounts for the incarcerated iris. In the 23 cases under notice, Lt-Col. Smith inserted the point of a strabismus hook at the edges of the wound and was satisfied that he had replaced the iris.

During the extraction of the lens in capsule the iris is often forced into the corners of the wound and to my mind, it is impossible to conceive how a round and comparatively large instrument like a strabismus hook could reach the extreme angles of the wound. Further, as the eye is in nearly every instance strongly rotated upwards, it is difficult for the operator to see what the point of the strabismus hook is doing. To some of us onlookers it appeared to be merely stirring up the vitreous.

In some of the cases at least it seemed that the pressure neces-

sary was excessive. Many lenses shelled out with the utmost ease; in others it was only the undoubted determination and persistence of the operator that brought about the desired result or caused a ruptured capsule or escape of vitreous. It seems to me that this excessive pressure is liable to cause injury to the deeper structures and may be responsible for vitreous opacities.

Iritis appeared in a high percentage of the cases, even when the lens was extracted in capsule. It is, I believe, claimed that *iritis* is extremely rare.

We have had reports of these operations from operators all over India, but most of these are merely enumerations of thousands or tens of thousands of extractions performed, and statements claiming percentage of successes varying from 90 per cent to 99.5 per cent.

Statistics, such as these, are useless, although I fully recognize that it is almost impossible to obtain reliable figures. For example, Lt.-Colonel Smith, Civil Surgeon, Jullunder, fulfills all the duties of Civil Surgeon of a large district. I believe he is also Superintendent of the Jail. He has a large general hospital and private practice, and in addition to all this, he performs in the busy season some 50 cataract extractions a day. He told us that he performs the cataract extractions at a rate of from 12 to 15 per hour, nearly 4 hours' work. Say 3 hours more to hospital work, seeing his patients and performing other operations, such as removal of the superior maxilla, etc. One hour for the jail. Two hours for his private patients, official and otherwise. This gives us a total of 10 hours' work.

The 23 cases under notice were examined by myself. Doctors Frederick Bentley and N. D. Pontius, of Seattle, Washington, U. S. A., both experienced Ophthalmic Surgeons.

We found that from 10 to 15 minutes was required for the examination of each case, *i. e.*, 50 cases would take at least 9 hours. It is obvious, therefore, that it is a physical impossibility for a busy man to examine the patients himself, and he has to trust mainly to subordinates in the matter of his notes and statistics when they refer to thousands of cases.

II. Letter from Lieut.-Col. Smith, July, 1910.

Major Kilkelly writes in the May, 1910, number of the *Indian Medical Gazette* with the air that his paper is the last word of this subject. He sneers at my statistics and at the statistics of men whom I have had the honor of training among others, and implies

that the facts of the hospital which they supervise are unreliable; a hospital which in the years 1902-3-4-5-6 shows 0.40 per cent as the incidence of iritis in a total of 3,184 cataract operations by the capsulotomy operation. He goes on to divide up my time and to apportion me duties in a manner which shows that he knows nothing about how I do my work; but he seems to think that this is necessary as a scientific argument and hence he presses it into his service. Suffice it to say that in my cataract seasons I do very little except cataract and iridectomies and supervise the hospital, leaving the rest of my work to my staff.

It was with great reluctance that I operated on those cases in Bombay, leaving by the next train never to see them again and leaving them in charge of a native staff, possibly in hostility to this operation. Major Kilkelly got me to operate on those cases to see how to do it. If he had for a moment led me to think that they were for publication, I would have indignantly refused to accept the conditions. As a matter of fact, I never heard of them again until I saw them published in the May number of the *Indian Medical Gazette*. I think, as an act of ordinary professional courtesy, Major Kilkelly should have consulted me before publishing those cases.

As regards the operations, they were nicely done, and I have no doubt if they had been under my staff, they would have done just as well as the cases published herewith which represent my ordinary routine experience. What happened to those cases after they left the operating table I do not know. Suffice it to say that the results are so extravagantly bad in every detail that they are not intelligible to me. I can understand an occasional case going wrong with any man, but I cannot understand a series being so extravagantly bad in every particular.

The small series of cases herewith published are all the cases normal at the time of operation which I have had leaving hospital, since I received the *Indian Medical Gazette* on 16th of April, 1910, up to the 1st of June, the date on which the publishers go to press with the July number of the *Indian Medical Gazette*. They are not sufficient for a deduction, but they are sufficient to put side by side with the cases published by Major Kilkelly and from which the reader can form an opinion.

I have had too many competent visitors from India, America and elsewhere, who spent sufficient time with me to see every detail from the patients' arrival in hospital until they left it, and who

know that I conceal nothing from them, to have the slightest fear of the future of this operation. Extraction of cataract in the capsule is not the "house of cards" which Major Kilkelly thinks.

It is interesting to compare the scientific attitude of Major Kilkelly with that of a number of distinguished American Ophthalmic surgeons who did me the honor of coming half way round the world and of spending a season with me to see every detail in quantity, and on what they saw to arrive at a conclusion. Major Kilkelly knows my standing invitation to any ophthalmic surgeon to come and see and on what they see to arrive at a conclusion. Major Kilkelly did not visit me, but prefers to write papers under the circumstances above detailed.

As regards the attitude of American surgeons, I quite agree with Mr. W. Arbuthnot Lane, M. S. F. R. C. S. (*Practitioner*, May, 1910), when he says: "Curiously enough the great bulk of the profession in England, with few exceptions, seems to have much difficulty in grasping the nature of the changes I have described and in accepting my explanation of their causation. I think this is due to the fact that they are not sufficiently interested to make themselves familiar with the state of affairs at the time of operation, and imagine that because these changes have escaped their observation they cannot possibly exist."

That is not the attitude of our surgical friends in Canada and in the United States. They are in advance of us in many ways in their methods of investigation. They attack any new problem very thoroughly and do their utmost to verify every fact by personal observation, and then they determine whether there is any truth in it or not. Trouble or expense affords no obstacle to their thirst for knowledge. They are not satisfied to accept unreservedly any statement or observation, and least of all, any opinion, and are only prepared to receive it when they themselves have either seen it or are satisfied as to its accuracy. They have no respect for so-called authority, and part with the innumerable surgical creeds which continue to control us as readily as their business men "scrap" machinery the moment a better mechanism has been devised. It is this attitude of the American surgeon that is exerting such a magnificent influence on the surgery of that country, and is, in my opinion, making them the most progressive surgical body in the world. Let us try and follow in their footsteps and remember that the mere denial of facts that are capable of the most complete dem-

onstration is neither the wisest nor the most scientific method of disputing their accuracy.

My method of persuading men is not by a paper warfare—I prefer men to come and see every detail in quantity and to form their opinion on what they see.

Compare Major Kilkelly's attitude with that of the broad-minded Americans who, after a few of their number had returned from me had a discussion, published in the *Ohio State Medical Journal* of 15th of April, 1910. It is sufficient to quote the remarks at that meeting of Dr. Louis Stricker, the distinguished author of *The Crystalline Lens System*, than whom there is probably no more distinguished authority on cataract:

"I am sure this subject is full of interest to everybody. It is holding the stage all over the United States and indeed not only in the United States, but all over the world. I had the pleasure, through the kindness of Dr. Ayres, of reading all the papers that were read in April before the International Medical Congress, which met at Naples, during that month of this year. One Dr. Valude, of Paris, condemned this operation in the most violent terms. He said he had tried it and condemned it most violently. On the next page is an article by an English surgeon, resident in Siam, who says he had done the old operation a thousand times and has done the new Smith operation 800 times; that under the old operation he had about 3 per cent loss of vitreous and under the new he had 10½ per cent, that he had not had a single case of detachment of vitreous. These two gentlemen typically represent the opinions prevalent over the scientific world. To see this operation the first time the mind revolts. All your study in anatomy tells you that this must be wrong. But the oftener you see it the more you are convinced it is the operation of the future, and although older men may not be able to put their prejudices aside and accept the new operation, I am satisfied that it is only a matter of time until we will use it as the operation of election."

"I have seen Dr. Greene do this operation 18 times, and in only one case that I can remember was there any loss of vitreous. I examined 35 people at the home (The Old Soldiers' Home), and the results were simply marvellous. You never get such results by the old operation, and I did not see anything in the operation that did not cause me to wonder at the results. It is a thing that is new, and the men (old soldiers) are very much interested in this

subject, and I feel that time will prove that it is the operation of the future."

The test used for those who do not read Roman type was capacity to calculate bull's-eye supplied on a sheet by Messrs. Law-

Cataract Operation Cases recently done by Lt.-Colonel Henry Smith, I. M. S.
[JULY '10]

No.	NAME	Condition at time of operation	Notes of operation	Time in Hospital	Post-operative complication	Vision	Lens
1 } 2 }	Badhshah	Normal	No compli- tion	10 days	Nil.	$\left\{ \frac{6}{5} \right\}$ $\left\{ \frac{6}{5} \right\}$	+10.50 +10.00
3	Nihala	"	"	11 days	"	$\left\{ \frac{6}{4.50} \right\}$	+10.50
4	Chet Ram	"	"	10 days	Iris caught in one angle of wound	$\left\{ \frac{6}{5} \right\}$	+10.00
5	Subadar Nehala	"	"	10 days	Nil.	$\left\{ \frac{6}{4.50} \right\}$	+10.00
6 } 7 }	Mt. Dooli	"	"	11 days	"	$\left\{ \frac{6}{4} \right\}$ $\left\{ \frac{6}{4} \right\}$	+10.50 +11.00
8	Harbans Singh	"	"	12 days	"	$\left\{ \frac{6}{4.50} \right\}$	+11.00
9	Rajaram Sitaram	"	"	12 days	"	$\left\{ \frac{6}{5.50} \right\}$	+10.00
10	Major C. H. Hodgkins, I. M. S., retired	"	"	12 days	"	$\left\{ \frac{6}{5} \right\}$	+ 9.50
11 } 12 }	Mt. Karm Bibi . .	"	"	12 days	"	$\left\{ \frac{6}{5.50} \right\}$ $\left\{ \frac{6}{6} \right\}$	+10.00
13	Mukhta Bibi . . .	"	"	10 days	"	$\left\{ \frac{6}{5} \right\}$	+10.00

rence and Mayo, of Calcutta, adapted to the different distances, and which when tested with the normal eye are if anything a little more difficult than Snellen's test type. The test for those who read Roman type was Snellen's test type. Number 10 (Major C. H. Hodgkins, I. M. S., retired) writes me the following: "With a +9.50 D. lens I can read fine metre type at six metres and with

a +13.0, I can distinctly see the individual hairs on the back of my hand at a distance of a foot. I have seen a good deal of ophthalmic work done and I consider a result of this sort remarkable." I examined him and all the others myself.

In all these cases the media were absolutely clear, and from experience I can say that their vision six months after operation will be even better than this

The mere denial of facts like these which are capable of the most complete demonstration is neither a wise nor a scientific policy.

This case leads me to think that we should be careful in operating for cataract unless the after-treatment is absolutely under the control of the operator.

III. Letter from Major P. P. Kilkelly, September, 1910.

I regret that Colonel Smith considers that I should have consulted him before publishing the results of the operations performed by him at this hospital. At the Medical Congress I publicly invited Colonel Smith to perform his operation on 42 cases which then happened to be in my hospital. He consented and actually operated on the 23 cases published. The operations were witnessed by a large number of medical men who were anxious to learn how the cases progressed. Consulting Colonel Smith would not have altered the facts or the results.

Colonel Smith tells us that, "during the cataract season he does little except cataracts and iridectomies and supervises the hospital, leaving the rest of his work to his staff." This bears out my contention that he personally knows little or nothing of the actual results of the bulk of his eye work.

Colonel Smith further states that the operations were "nicely done," that is, he is himself satisfied with a series of cases which show 26 per cent of total accidents and 21.7 per cent of capsule ruptured during operation.

He insinuates that the cases were badly treated after they left the operation room, and that I and my staff were in hostility to the operation.

As a matter of fact, the cases were specially nursed by the senior staff nurse in charge of the hospital, an English nurse, London trained, with 3 years' experience of eye work and no one touched or dressed the eyes except my senior Assistant Surgeon, Dr. J. N. Daggan and myself.

So far from being hostile to the operation, I was anxious to be convinced that at least as good results could be obtained as by the capsulotomy method, and the whole of my staff were most anxious that good results should be obtained.

I have the greatest admiration for Colonel Smith. His is a marvellous personality. He has undoubtedly done great work, but he is an enthusiast and such is the magnetism of his personality that he carries his followers with him to the extent that they will even attempt to replace the iris with a strabismus hook or iris forceps.

Colonel Smith now publishes 13 cases, the results of which to use his own expression, seem to be "extravagantly good." In every case Vis. is 6/6 or better with +10 or +11D *spherical lens*.

He states that these 13 cases were the only normal cases operated on from 16th of April to 1st of June—6 weeks. It would be interesting to know the results of the other cases discharged from the hospital during that period.

I do not understand if by normal he means that every case was emmetropic or at least varied from absolute emmetropia by not more than 1 D and that in no instance did any patient suffer from astigmatism before operation, otherwise it would seem that such are the virtues of the incisions made by Colonel Smith that pre-existing errors of refraction are corrected by his operation.

Since I reported the results of the 23 cases, a twenty-fourth has come under my notice, a Parsi, who last cold weather was operated on by Colonel Smith himself and whose after-treatment was controlled entirely by Colonel Smith and his staff. He was discharged, according to his own statement, as cured in 13 days.

When I saw the patient, about two months later, the eye was in a hopeless condition:

Cyclitic—no P. L.—no anterior chamber—T+3 painful eye.

I enucleated the eye and sent it to Mr. Hudson, pathologist, Royal Ophthalmic Hospital, London (Moorfield's), and he was good enough to send me the following report, which I received last week. I would draw attention to the condition of the iris:

REPORT.

"Scar of section starts and ends in limbus and lies about 1 mm. inside limbus above.

The iris is everywhere atrophic and sphincter pupillæ is absent above. Both here and laterally the iris is adherent to the

deep aspect of the corneal scar, as is a delicate new membrane, containing stellate and spindle-shaped cells, which is probably of mesoblastic origin and which completely occupies the pupil.

The diaphragm so formed by iris and membrane is ballooned forward, so as almost to obliterate the anterior chamber, the angles of which are completely closed above and below by firm union of iris with cornea.

The ciliary body is atrophic.

Choroid and retina are *in situ*.

The vitreous is abnormal, irregular strands being adherent anteriorly in the neighborhood of the scar.

A few poly-morpho-nuclear leucocytes and red blood corpuscles are to be seen in its lower anterior part on the ciliary processes.

There is some glaucomatous excavation of the optic disc."

I have published these results as being of general interest.

A high percentage of accidents and bad results have certainly occurred, and I repeat that it is far from established that as good results are obtained by the intra-capsular method as by the older operation when it is carefully performed.

IV. Letter from Lieut.-Col. Smith, Nov., 1910.

To Major Kilkelly's letter in your September issue I would decline to reply, were it not that he introduces new matter. To answer his letter would be to deal in generalities. However, I shall get into closer quarters with him in an early issue of the OPTHALMIC RECORD, of Chicago. Therein, generalities apart, those interested in the 23 Bombay cases will be able to see the other side of the question. This alone I will say; I consider Major Kilkelly's statement that "he knows little or nothing of the actual results of his eye work" in reference to me, a piece of impertinence.

The New Matter. Why did Major Kilkelly report the case of the Bombay Parsi, and why, when he did report it, did he report only one side of the question, and that incorrectly? This Parsi was a highly intelligent man, a man who insisted on giving us a full and detailed medical and ophthalmic history before we arrived at any conclusion on his present condition. If he did not impart information to Major Kilkelly as freely and as insistently as he did to me, I would be greatly surprised. If he did not volunteer this, Major Kilkelly should have asked him for details, which I have no doubt would have been forthcoming, and these details he should have published along with the case. But had he done so the case.

from his point of view, would not have been worth publishing. That he did not publish such details, harmonizes with his conclusion that I know little or nothing of my cases, and so he could publish one side of the case with absolute safety.

Here are the facts of the case. The patient gave a careful medical history of himself and a succinct account of the many ophthalmic hospitals, south of the Punjaub, which he had visited in search of relief and how he had been rejected by them all as incurable. He gave a well marked history of syphilis and syphilitic iritis and of some probable syphilitic fundus trouble. He had had an iridectomy done. The iris was bound down to the lens all round its pupillary margin, the result of syphilitic iritis or from a not unlikely irido-cyclitis. His recognition of light was poor. I told him that the prospects of good vision were nil, but that there was a fair prospect of useful vision, but that the risks were considerable and what these risks were I made clear to him. He decided to accept the risks. I extracted his lens in the capsule—the ideal operation in such an eye above all others. There was no escape of vitreous. All went well. He required no after-treatment and was discharged quite pleased with his luck. I instructed him when leaving to be very careful about exposure to glare and dust on his way home. He went sight-seeing and returned to me five days afterwards. He told me he had put his head out of the window of the railway carriage and got some coal dust in it from the engine. For relief he went to the nearest hospital and got the dust taken out. Atropine was instilled at the same time. After the atropine instillation he began to suffer excruciating pain which he correctly attributed to the atropine, so close was its onset to the use of the atropine. When he came back to me, it was evident that all his pain was the pain of a fulminating glaucoma, associated with an irido-cyclitis. I did what I could for him, but the case was hopeless. All similar cases are liable to intense intraocular inflammation on slight provocation and as foreign bodies in the conjunctiva or the use of atropine which would not affect an eye in this way if its condition were normal.

I regard it as inexcusable for Major Kilkelly to have refrained from reporting the above facts, if it is ever excusable for one man to report another's case in this way. Such one-sided reporting is of no scientific or other interest except to the mob. How would it look if all of us who are rivals in practice proceeded to report one another's cases in this fashion as being of general interest? There

would be an end to the dignity and respect which we, as a profession, command and Medicine would cease to be a career for honorable men.

V. Letter from Captain W. E. McKechnie, I. M. S.

In Colonel Kilkelly's reply to Colonel Smith in your issue of September there occurs this paragraph: "Colonel Smith has undoubtedly done great work, but he is an enthusiast and such is the magnetism of his personality that he carries his followers with him to the extent that they will even attempt to replace the iris with a strabismus hook or iris forceps."

In regard to this I wish to say that I was one of Smith's first pupils and one with whom he took much pains. I cannot speak for others, but so far as I myself am concerned, it was nothing in Smith's personality or any enthusiasm of his which led me to become one of his pupils. I attended his clinic from time to time for over a year before he let me operate. The only enthusiasm then was on account of what I saw. Further, I am not a blind follower of Smith. When operating under his direction in his clinic I, of course, operated in his way and with his instruments. I was learning. But when operating on my own account during the last two years I have not used a strabismus hook to replace the iris. I do not mean to infer that the iris cannot be properly replaced by a strabismus hook; it often is. But I am of the opinion that a better repositor can be found during the last two years I have been experimenting with different kinds made by myself. Colonel Smith is always ready to receive suggestions that are of value, and I see it stated in the *OPHTHALMIC RECORD* of February, 1910, that he fell in with the ideas of one of his American pupils in this very matter and they tried together different methods of reposing the iris.

So far as my own cases are concerned, occasional prolapse of iris is the only complication which really troubles me or my patients; others are rare. In my hands, Smith's operation is superior to the old in every respect, with the exception of a greater tendency for prolapse of the iris. When I have perfected my technique in the matter of reposition of the iris I expect to see even this disadvantage disappear. My opinions are not founded on any admiration for Smith, but as a result of an extensive experience of his operation Smith and his followers have good reason for being enthusiastic, and there is no occasion to attribute it to personal magnetism. I do not suppose the possessors of the twenty thousand

odd cataracts that Smith has extracted were attracted to Jullunder by personal magnetism either.

VI. Letter from Lieut.-Col. Smith, to the Editor of the Ophthalmic Record.

It is obvious that my reply to Major Kilkelly's letter in the May, 1910, number of the *Indian Medical Gazette* (which also recently appeared in the OPTHALMIC RECORD) was merely tentative, until I could learn what were the real facts of the case. Of this I had no information and even now can obtain none. He refuses to let me see the bed-head tickets of these same patients, the charts on which, at the time of operation, I entered full particulars of the case and the way I dealt with it. Thus I had simply to wait, confident that there was something radically "wrong in the state of Denmark" and convinced that sooner or later "murder would out" and that time would reveal interesting facts concerning this incomprehensible indictment. That more complications should occur in these 23 cases than do occur, on the average, in 200 cases in my own hospital, seemed passing strange. Hence in my original reply I forebore touching on any of the facts quoted and, for the time being, contented myself with replying to the article as a whole. Now, however, I am in a position to answer Major Kilkelly more in detail. First of all with regard to Dr. Bentley and Dr. Pontius, the two gentlemen to whom he refers, I am in a position to state that Dr. Bentley called at Major Kilkelly's hospital; that a few cases were paraded for him, but not 23; that he took a casual glance at them, but not a critical examination; that he is most indignant at his name being used by Major Kilkelly in connection with these cases and, lastly, that the conclusion he came to was that I had been somewhat foolhardy in operating on the cases in the hospital in question.

Dr. Bentley had made arrangements for a course of instruction with me a considerable time previous to his visit to India. Dr. Pontius had made none. A day or two before arriving he wrote and asked me if he might come. Dr. Pontius dropped in as a globe trotter, Dr. Bentley as an accepted pupil to my clinic. Dr. Jamieson, of Belfast, was also with me on the same conditions. For these two men I had arranged to do all I could, to give them every operation I could spare. To have given any to Dr. Pontius would have been manifestly unfair to the other two men. None was given him. Every opportunity, however, was given him of seeing and examining everything. Nothing was concealed from

him. One evening he informed us he was departing by the next train a few hours later. It was obvious he considered himself ill-treated and left with a grievance. When he arrived in Bombay he evidently found a congenial atmosphere in Major Kilkelly's hospital. The figures I shall hereinafter quote are taken from Dr. Pontius' paper in *Northwest Medicine* (Seattle, U. S. A.), published in May, as far as I remember, and about the same time as Major Kilkelly's letter appeared in the *Indian Medical Gazette*. In both cases some fourteen months after the notes had been taken. One glance at the Major's contributions on this subject is sufficient to dispel the fancy that it is with rose-colored spectacles he is looking at these cases. The statements of these two allies, we can fairly assume to be of equal value, that they were both fully competent and equally competent to report on cases such as they have reported on, no one will deny, least of all myself. Let us examine some of Dr. Pontius' statements. Dr. Pontius states that he saw 250 cases done by me in Jullunder. This is incorrect. These were practically all done by Dr. Bentley and Dr. Jamieson under my supervision and instruction. Had I done them myself probably there would have been less incarceration of iris. Dr. Pontius says with regard to the 70 cases he examined at Jullunder, he found evidence of having had iritis in many. What does he mean? He examined these cases 6 clear days after the operation on the occasion of their first being dressed. What sort of iris occurs between the day of operation and the seventh day and disappears without treatment? Had these cases been done at Seattle by Dr. Pontius himself and had he reported them, would he have referred to a single case as iritis? He made no further sinister report on what he saw in Jullunder. We are fairly safe in assuming that if there had been anything further sinister to report he would have done so. Why did he not go into details with the Jullunder cases as he did with the Bombay cases? Surely, from a scientific point of view, it would have been a sounder and safer proceeding. He saw the operation performed, he saw the history tickets written up, he saw the same cases afterwards. Whereas, in Bombay the evidence was only hearsay that I had operated on the case in question at all.

With reference to the Bombay cases we now come to the real argument; to the facts which Major Kilkelly and his ally, Dr. Pontius, have been pleased to give us. We have no other facts and we have to examine them as a lawyer examines evidence on

paper after it has been elicited. The actual number of cases was 23. Major Kilkelly reports on 23, Dr. Pontius on 24. Major Kilkelly, therefore, paraded for Dr. Pontius one case as mine which I did not do. How many more were paraded for Major Kilkelly and Dr. Pontius which I did not do? Major Kilkelly finds vitreous opacities in many. Dr. Pontius does not find vitreous opacities in any. Major Kilkelly does not find the corneal wound incompletely healed in any (three weeks after operation). Dr. Pontius finds the corneal wound incompletely healed in six.

Major Kilkelly finds iris prolapsed in six. Dr. Pontius finds iris prolapsed in two. Major Kilkelly finds incarceration of lens capsule in four. Dr. Pontius in three.

I wanted to see my entries in the bed-head tickets of these cases as I am confident that there was capsule left behind in but one of them, but on recently applying to Major Kilkelly for the loan of them, he declined, saying that he "does not see what purpose it would serve" to let me see them. Major Kilkelly finds opaque pupillary membrane in two; Dr. Pontius in six. Major Kilkelly finds evidence of having had iritis in seven; Dr. Pontius in nine. Major Kilkelly finds ciliary injection in three; Dr. Pontius in six.

The above are all gross lesions which could be seen as plainly as one man could see another on the road. There is no room for opinions about them. I admit that each of these two men saw what he reported on. One of them saw 23 cases, the other saw 24, one too many. When the above facts are carefully compared I think it is evident that these two allies did not examine the same cases, otherwise why these gross discrepancies? Who operated on one of the 24 cases paraded for Dr. Pontius? That none of these patients should have had vision above 6/15 (Major Kilkelly) is ludicrous. A number of them should have had an approach to that without spectacles.

Why does Major Kilkelly refuse to let me see my entries on the bed-head tickets? Are the accidents at the time of operation reported by him grossly exaggerated? I think they are. At this juncture he does not see "what purpose it would serve" to let me see them. My original and my present presumption is that the scum of the Bombay Hospital was paraded for these two men to examine and report on. I now leave the verdict on the whole case to the judgment of fair-minded men.

THE OCULAR AFFECTIONS IN CONGENITAL SYPHILIS.*

BY S. D. RISLEY, A. M., M. D., Ph. D.

PHILADELPHIA, PA.

Your chairman in arranging this symposium on syphilis as affecting certain special organs of the body, has doubtless been guided by his desire to have presented before this special section and recorded in its annals the very significant and important additions which have been made within very recent years to our definite understanding of the essential nature of the disease.

It is probable that no form of disease has been subjected to a more critical clinical study than syphilis. From the initial lesion onward through its various phases of development it has been pictured with an accuracy of clinical detail that has left but little to desire.

Modern research, however, has, with the aid afforded by the great advance which has been made in the laboratory technique of microbiology, placed within our reach possibilities for the intimate study and diagnosis of syphilis in its protean manifestations which were denied to our predecessors.

The clinical history pointed so definitely to a specific infection that as far back as 1837 Donne sought for the infecting agent and supposed that he had identified it in certain vibrios discovered in vulvar chancres. Subsequent investigation did not confirm his early observations. Indeed it was only after microbiology had reached an advanced stage that it was possible to discover and eliminate the spirillum of syphilis from the numerous micro-organisms assembled in syphilitic lesions.

There is no more interesting chapter in the history of medical discovery than that which relates the untiring industry, the skill and scientific acumen displayed in every biological laboratory in Europe in the search for the infecting agent in syphilis. It is excelled in interest only by the heroism of our own countrymen in unravelling the mystery underlying the propagation of yellow fever and malaria.

For many years the search was continued, but it was reserved for Schaudinn, a zoologist, expert in the study of the protozoa, and tions of a systemic infection, i. e., a blood disease; or, a sequel of Dr. E. Hoffman, specialist in syphilis, laboring conjointly to dis-

*Read before Section on Specialties, Pennsylvania State Medical Society, Pittsburgh, October, 1910.

Will also appear in the Pennsylvania State Medical Journal.

cover the *spirochaeta pallida*, their results being published in May, 1905.

This discovery has given a renewed impetus in the study of syphilis. While the clinical picture has not been changed, we now have at hand means for the detection of the spirillum and for determining the effects of treatment in its destruction.

In studying the ocular affections due to syphilis it is not practicable to avoid a more or less general view of the disease, since the ocular disease is, either one of the many local manifestations the resulting dyscrasea. In acquired syphilis in the adult, for convenience, the development of the disease has been divided into the primary, secondary and tertiary stages.

In congenital syphilis we shall find that the secondary and tertiary manifestations present much the same symptom complex as in the acquired disease in the adult and that cases of hereditary ocular syphilis group themselves in much the same manner.

In group one, for example, the child will exhibit, either at birth or soon after, the characteristic symptom of secondary syphilis: viz., the stuffed nostrils, mucous patches, eruptions on the skin, and more or less well marked febrile reaction. Associated with these occurs the plastic or exudative inflammation of the uveal tract of the eye—that is to say chorioiditis and iridocyclitis, but rarely affections of the cornea except descemetitis.

Having in mind the well-known predilection of the spirillum of syphilis in this first stage of general infection, to attack the ectodermic and mesodermic structures throughout the body, it is not cause for surprise that the eyes should be so frequently involved in metastatic collections of the micro-organisms. It should be born in mind in this connection that the eye is developed, embryonically, solely from the ectoderm and mesoderm; and that the pathology of syphilis has shown that first the ectodermic and second the mesodermic structures are those most liable to invasion. The highly vascular uveal tract and its lymph channels, both developed from the mesoderm would seem to render these structures particularly liable to invasion by living micro-organisms circulating freely in the blood and lymph streams. Accordingly we find in ophthalmoscopic study of infants and young children suffering from syphilitic meningitis, also iritis and chorioiditis, the latter characterized by disturbance of the abundant pigment epithelium. In eyes that have never been examined until the school age, or possibly because of an existing nystagmus, has called attention to the defective vision, it is not very unusual to find more or less dis-

seminated chorioiditis with pigment splotches, chorioidal atrophies and pigment rings. They may or may not be associated with other stigmata of syphilis.

The occurrence of prenatal iritis has been called in question. My personal experience suggests that it must rarely occur. I have, however, published the history of one case occurring in my own practice—an abstract of which is included in this paper.

That such cases should be rare is obvious when we consider the conditions which must occasion it.

The profound infection of the foetus at so early a stage of utero-gestation and the observed pathological conditions of the placenta and cord in syphilis, must obviously lead either to the death of the foetus *in utero* or to premature or still birth deliveries. Therefore living children born with secondary ocular syphilitic metasases must of necessity be rare.

The cases of ocular disease occurring within the first month of extra uterine life are, however, by no means so uncommon. Children born of syphilitic parents are for the most part quite healthy at birth. It has interested me to inquire at what age the taint manifests itself. The statistics of Still, and of Diday, quoted by Still, show, that in 258 cases of congenital syphilis the symptoms of general infection were noted before the close of the first month in approximately 54 per cent—rarely after the third month. Without collecting my own cases of syphilitic eye disease in infants my impression is that my own experience is in close accord with these statistics.

Violent iritis in infants has been rare, but more frequently ciliary injection, slight posterior synechiae, deposits on Decemet's membrane, proliferating chorioiditis; and later the cases of so-called pseudo-glioma, resulting in total blindness in one or both eyes.

It is probable that in many cases of mild general infection, the stuffed nostrils of tainted infants are ascribed to cold taking; that the skin eruption is diagnosed as prickly heat by mother and nurse and as a consequence suitable treatment is not instituted. In like manner the mild inflammations of the chorioidal tract pass unnoticed until the results of the disease are discovered in early youth. In these unobserved cases of congenital syphilis we doubtless find adequate explanation for many of the cases of obscure chorioidal disease even in young people or later in life.

Another phase of ocular disease falling into this group is that depending upon syphilitic endarteritis, affecting the vessels of the

retina and chorioid in association with syphilitic meningitis. The very serious importance and frequency of obliterative endarteritis in subjects of congenital syphilis has I am sure, been in some measure neglected by ophthalmologists. In children it is probably rare for the reason, that when the virus attacks the vascular system, as it is so prone to do, it usually proves fatal to the product of conception either before or soon after birth. Within the present year, however, I have seen two striking examples of endarteritis of the retinal vessels, in syphilitic adults.

Turning now to the second group of hereditary ocular syphilis, which comes under the observation of the ophthalmologist, we are again confronted by the similarity of the symptom complex with tertiary syphilis in the adult.

Mott in his syphilis of the nervous system (Vid. A System of Syphilis, Page 416. Vol. iv. Edited by Power and Murphy), quoting Barlow and Bury, says: "It may, indeed now be said, in contrast to the early views, that nearly every variety of nervous affection of acquired syphilis has its parallel amongst congenital examples." Mott himself asserts that: "It seems to be proved that syphilis acquired in infancy after birth may be followed by the same result as its acquisition *in utero* or its sperm or germ inheritance," and quotes from Welanders of Stockholm, the case of a boy who had acquired syphilis from his nurse when three months old. At the age of thirteen (13) he suffered with interstitial Keratitis and nodes, and had the characteristic Hutchinson's teeth.

In the study therefore of ocular affections in tainted children, we should expect to find the same group of symptoms with which we are familiar in the later stages of acquired syphilis in adults, with, in addition, the sequelae of a vicious dyscrasiae e. g. arrested development, glandular disease, impaired metabolism, nodes, and gummata, interstitial Keratitis, imbecility, or impaired mentality from arrested development of the brain; meningitis, optic atrophy and the tabetic phenomena of childhood or early life. While it is true that the later stages of the syphilitic infection are the important etiologic factor in some of the most serious forms of disease of the nervous system in adult life e. g. in tabes and general paralysis, and must be regarded with corresponding gravity; nevertheless the corresponding stage of the disease in inherited syphilis is of even graver import to the child.

The secondary phenomena of the disease have already wrought havoc with the tender tissues of infancy. The infected blood and

lymph stream in the growing child have carried to the walls of the vascular system, to the glands, to the brain, to all the internal viscera, to the ears and to the eyes the spirochaeta. The metabolism has been impaired, growth arrested, the mind enfeebled. Our institutions for the feeble minded have many examples of children with pegged and notched teeth, the scars of interstitial Keratitis, chorioidal splotches, impaired hearing and other stigmata of inherited syphilis. Therefore in our study and treatment of interstitial Keratitis and its allied affections these considerations should be born in mind. For, we have to overcome by treatment not only the specific cause of the disease but the sequelae or results of the disease on the organism of the child. It is here that the Wasserman reaction is of importance and value in directing the treatment.

It is obvious that, if the presence of spirochaeta pallida have been demonstrated, the only known rational treatment is the administration of mercury, and possibly arsenic. But it is well known that many cases of parenchymatous Keratitis occur in individuals in whom the syphilitic inheritance cannot be traced with any degree of plausibility and where the usual stigmata are wanting. Then too, in cases where the pegged and notched teeth, and the syphilitic facies are associated with the Keratitis we fail to secure the usually favorable response from mercury. It is possible that even in cases of inherited syphilis that the Keratitis may be but one of the sequela of the viscous dyscrasia caused by the secondary stage of the disease, and at most can be regarded as a parasymphilitic phenomenon; that is to say, it may be of the same types of Keratitis not infrequently associated with myxedema, the tubercular diathesis and other diseases of impaired nutrition. I have discussed this phase of the subject elsewhere at some length ("Some Etiologic Factors in Interstitial Keratitis," Oph. Record, July, 1908), and have given illustrative cases in which no treatment was availing until the impaired influence of the thyroid glands over the general nutrition had been reinforced by the administration of the pulverized thyroid of the sheep.

In the syphilitic dyscrasia, not only the uveal tract of the eye, but the thyroid and other ductless glands have fallen a prey to the baneful influence of the spirillum. In our treatment this probability must be borne in mind.

Another factor in the etiology of the corneal disease may be overlooked, viz., the disturbance of the nutrition of the eye ball by the obliterative endarteritis of the retinal and chorioidal vessels. The avascular structures, viz., the vitreous body, lens and cornea,

are especially prone to suffer from this impairment of the normal nutritive function of the chorioid.

I do not recall any case of optic nerve disease in hereditary syphilis except as a concomitant or sequel of meningitis, e. g., cases of juvenile general paralysis or tabes, with atrophy of the optic nerves. It is probable that if all cases of hydrocephalus and meningitis in tainted children were examined with the ophthalmoscope before the fatal issue, that optic nerve disease and atrophy in syphilis would not be so rare as it seems.

In my personal experience ocular palsies in syphilitic children has been very rare—probably because of the extremely fatal result of the disease where the brain has been invaded by the spirillum.

The following case history is appended as illustrative of several phases of congenital syphilis, all too briefly discussed in the limited time allotted to the presentation of papers—I had the opportunity to observe this case more or less continuously for fifteen years.

Kate, H., a blind girl aged fifteen years, tall for her age, spare of frame and a middle grade moral imbecile, but possessed of a prodigious memory and strange fancies, who had recently been discharged from the blind asylum because of her corrupting influence over the other inmates, was brought to my clinic at the Wills Hospital for treatment of the eyes. She first came under my care in 1893, as a private patient in infancy, through the courtesy of Dr. Roland G. Curtin, who had been the family adviser for twelve years.

I am indebted to him for the following family history: The parents, born in Ireland, were then thrifty industrious people, living in their own home and owning two other houses. The mother, a woman of stalwart frame and good mind, had suffered four miscarriages occurring from the fourth to the seventh month of gestation. The fifth conception soon occurred and the woman was placed on continuous mercurial treatment, with the result that she gave birth to a living, perfectly healthy child, exhibiting no evidence of inherited disease. The mercury was then administered to both parents and in due time a sixth pregnancy ensued and a daughter was born at full term, grew up to young womanhood, a sprightly healthy girl.

Supposing themselves cured the parents then neglected both their physician and the treatment. A seventh pregnancy then occurred, the product of the conception born at or near full term, be-

ing the subject of this sketch. When brought to me in October, 1893, she was a puny child, aged eight weeks, presenting well-marked syphilitic facies, a skin eruption, stuffed nostrils, and so far as could be determined in so young a child blind in both eyes. The eyes were bad at birth and inspection showed an annular attachment of both irides to the anterior capsule of both lenses, and the pupil in the right eye occluded by a gray mass of lumpy. The eyeballs were small and soft, the anterior chamber shallow. In a word, the eyes had been ruined by a prenatal iritis, a result of specific infection.

A mercurial bandage was prescribed and worn continuously. The general nutrition improved rapidly, the eruption on the skin vanished, the stuffing of the nostrils disappeared and the child grew and steadily improved in health, losing much of the general syphilitic dyscrasia. The right eye remained blind, became stony-hard, slowly enlarged and passed into a marked buphthalmos. When twenty months old she was admitted to the Wills Hospital, the left eye having greatly improved under the mercurial, the bandage having been worn continuously for a year. The enlarged right eye was removed and an iridectomy performed on the left. This resulted in sufficient vision as the child grew to enable her to see her way about, and to learn her letters on large play-blocks. This remained stationary for about six years and then steadily failed until in 1902 she could perceive shadows only. I then advised her admission to the blind asylum, an institution for the instruction of the blind where she remained until December, 1907.

With the deterioration of vision she became feeble-minded, but as is quite common in certain phases of imbecility, displayed some of the qualities of erratic genius, she had a phenomenal memory and a vivid imagination, memorizing long passages from the poets and imagining herself the poet, these ecstatic moments being followed by periods of irritability, petulance and deep despondency. She finally sank into a moral degeneracy that compelled her incarceration in a more suitable environment. The parents started in life with bright normal minds and for years seem to have lived thrifty normal lives. But finally, through baneful, direct and secondary effects of syphilitic infection, sank into poverty and the father died a drunkard and syphilitic wreck. Among the many points of interest in this painful history are, first the remarkable efficiency of mercury, as shown in the family history, in holding in abeyance, at least, the baneful influence of the syphilitic infection.

Reports of Societies.

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING JANUARY 19, 1911.

DR. WILLIAM ZENTMAYER, CHAIRMAN, PRESIDING.

Unilateral Vertical Nystagmus.

Dr. Zentmayer presented a patient with Unilateral Vertical Nystagmus. J. F., aged seventeen years. The eye has been turned since five years of age. As long as he can remember, objects looked at "jumped." He never had diplopia. Has worn glasses five years. Has one brother and one sister, but neither has any eye trouble.

There is an esotropia of 40 degrees, measured on the perimeter. Right eye is the fixing eye. In left eye there is a vertical nystagmus. The movements are short and rapid; are not constant, and are less pronounced on fixation. Irides react promptly to light and convergence. Pupils equal. No ophthalmoscopic changes. A double advancement after the method of Worth was done at the same time on the external recti, one by Dr. Zentmayer, the other by Dr. Weinburger, the senior resident at Wills Hospital, where the case was seen. Ten days later, as there was a residual squint of 8° (perimetric), a tenotomy of the internal rectus of the left eye was done. For some time there was a most annoying diplopia. The image could not be made to fuse by any combination of prisms. About one month later the diplopia was no longer annoying, and is now little regarded. There is at present a R. H. of 9° (prismatic). There is orthophoria for the lateral muscles. With a 9° prism, base up, before left eye, single vision is maintained. Refraction: R. E. $+ 4.50 \text{ C} + 1$; c. ax. 180° 6/v. L. E. $+ 3.50 \text{ C} + 1.75$; c. ax. 15° 6/xx. With the amblyoscope there is with the correcting prism third dimension vision.

Dr. Zentmayer stated that in 54 reported cases the nystagmus was vertical in 36, and that in more than one-half of the cases it has been associated with squint. In only 1 case, that reported by v. Graefe, was the nystagmus in the fixing eye.

Duane divides the cases into two groups—those occurring in infants and those in later life. In the first group it is met with in spasmus nutans, and with unilateral opacities in the media. In the

second group, in unilateral amblyopia and squint, unilateral astigmatism of high degree, and in diseases of the nervous system. He considers that these cases do not differ materially in causation from the bilateral type. The primary cause is probably the same—perverted action of the centres governing coördination.

Verhoeff's explanation of a case with squint is that "at first there is a cortical lesion, probably congenital in origin, that tends to produce nystagmus in both eyes. This is associated with, although independent of, an absence of the function of binocular single vision, which leads to the development of squint. Owing to one eye being now used for fixation, its tendency toward nystagmus is now fully compensated for. On the other hand, the squinting eye never being used for fixation, its tendency toward nystagmus is allowed to become manifest."

Umbrella Perimeter.

Drs. Reber and McCool presented an umbrella perimeter, which they had found equally serviceable for everyday use in the consulting-room, and also as a portable instrument. In its mechanism it is really a modification of the umbrella in everyday use. The ordinary handle is omitted and a cover used on the inside as well as the outside. Consequently, when the umbrella is expanded or put up, a black hemispherical surface is presented, which, very naturally, offers many advantages over the ordinary blackboard.

It is most useful in the study of scotomas, and is quite as serviceable in the accurate determination of the periphery of the visual field.

For it the authors claim ease of application, a background without any disturbing influences, rapidity in making examinations, no constrained position for the patient, portability and small cost for the apparatus.

As disadvantages in the present instrument, they admit that it is not an absolutely perfect sphere, that with it there would be a 5 to 10 degree limitation in the lower temporal field, also that the patient's head is not perfectly stationary. For this same reason, however, the examination is not so fatiguing.

They simply wished to present the idea, recognizing that there is much room for mechanical improvement in the construction of the instrument. They have used the device constantly for the last six months and have found it abundantly satisfactory.

Dr. Crampton, in complimenting Drs. Reber and McCool on

their ingenious perimeter, and noting the difficulty in centring the eye before an instrument of this kind having no chin-rest, suggested a small round mirror for a fixation point. The patient should be told to look at his own eye in the mirror, and unless the eye were exactly in a central position it could not be seen. The mirror might be surrounded by a narrow white ring to attract attention.

Dr. William M. Sweet spoke of the difficulty of securing accurate color fields by the use of colored disks of paper or cardboard, as employed in the ordinary daylight perimeter, and believed that ultimately a satisfactory material would be obtained to give a true color value with the transmitted light of the incandescent lamp. Colored glass and colored fluid in glass cells had been tried by him with indifferent success, but he hoped soon to secure gelatine films, especially colored for use with the electric light perimeter, each color being accurately determined by spectroscopic study.

Mollusum Contagiosum of the Eyelids—A Supplementary Report.

Dr. Sidney L. Olsho made a supplementary report on the case described at the October meeting as "A Case of Symmetrical Tumors of the Eyelids allied to Dermoids." At a subsequent visit of the patient, several tumors resembling those previously noticed only on the lids were seen on other parts of the face, there being several in the neighborhood of the chin and mouth. The photographs, drawings, and histological sections were submitted to Dr. M. B. Hartzell, of the University of Pennsylvania, to whom Dr. Olsho was indebted for the positive diagnosis of mollusum contagiosum. In the histology given in October the growths were described as consisting of a number of small lobule-like structures separated by connective tissue. The center of each lobule was said to be occupied by large, poorly staining granular cells having each a more or less spindle-shaped nucleus, generally placed to one side. These cells were not identified. They are now known to be the mollusum cells characteristic of the disease, the cell itself being occupied by the so-called mollusum bodies, the contagious element. The exact nature of the latter is yet unknown. According to recent views, their presence causes a proliferation of the rete layer of cells of the epidermis. This gives rise to the tumor-like formations, separated by the connective tissue of the papillæ of the corium. A progressive degeneration of these proliferating cells,

resembling the process of keratinization, is said to take place. The molluscum growths have no analogues in pathology. The presence of the molluscum bodies is pathognomonic of the disease.

Dr. Shumway asked if there was an absence of umbilication in the growths, as this was usually an important point in the differential diagnosis of the condition. He had seen a large number of cases in one of the orphan asylums of the city, which were subsequently reported by Dr. Frank Knowles, and the contagiousness of the disease was very evident. He believed that in the treatment of the growths it was best to curette them first, and then use some cauterizing agent, such as trichloroacetic or carbolic acid.

Dr. S. D. Risley had seen a number of cases of molluscum contagiosum, in all of which he had curetted away all of the affected tissue, and, where the area was small, cauterized the denuded surface with trichloroacetic acid; but in one instance, where the denuded surface was 12 mm. in diameter, he had covered the denuded area with Thiersch graft. In their well-developed stage, he thought their appearance was quite characteristic and diagnosis not difficult.

Dr. Zentmayer said that in his experience the disease was one rarely seen in eye clinics. This is due to the fact that it is essentially a skin affection and the ophthalmologist sees only those that are accompanied by some affection of the eyes.

Toxic Paralysis of Accommodation.

Dr. Howard F. Hansell read a paper on the "Toxic Paralysis of Accommodation," and stated that the dilatation of the pupil, so often associated with amblyopia from toxemia, cannot be classified as toxic paralysis of the pupil, since it is not dependent upon an affection of the peripheral or central nerves, but upon the degree of amblyopia. Ciliary paralysis also does not occur. The accommodation cannot be determined, because of the low acuity of vision, without the use of a special instrument.

Disturbances of the extraocular muscles are not common, although authentic reports have been published. External ophthalmoplegia and nystagmus are rare. Isolated ophthalmoplegia interna, according to Uhthoff, never occurs.

In the first case, two possible causes only could be discovered, namely, epilepsy and alcohol poisoning, with the probabilities stronger in favor of the latter. A strong, healthy man noticed sudden loss of the power of reading; the pupils were widely but

not fully dilated, and responded to light. He recovered fully in five days the lost accommodation and the normal size and reaction of the pupils. The second case closely resembled in its symptoms the first. The paralysis of both the ciliary muscle and the iris was more complete; several examinations of the urethral discharge revealed gonococci in moderate abundance. Recovery ensued in about one month without ocular treatment.

Dr. Risley said that he had been much interested in the group of patients presented by Dr. Hansell. That while he had nothing new to offer, he suggested that it would be interesting, and possibly important, to watch subsequent developments in order to determine whether or not the transient paralysis of accommodation might not be a manifestation of the early stages of tabes.

Dr. Ziegler thought it was possible that the class of peripheral palsies described by Dr. Hansell could be caused by an excess of toxins in the system, and that these toxic chemicals might have a direct corrosive action on the peripheral nerve fibers similar to that of wood alcohol on the neuroretinal structures. This is exemplified in the relief of impending diphtheritic palsies through dilution of the perverted secretions by hypodermoclysis. Last summer Dr. Ziegler saw a case of acute poisoning in a two-year-old child, with pronounced myosis, spasm of the interni, and coma, which was followed by severe vomiting. In differentiating between opium, nicotine and muscarine poisoning, opium was excluded because it was not accessible. The child could easily have picked up and eaten a cigarette stump or a poisonous toadstool that might have been found in the yard. It has been shown that acute nicotine poisoning will produce myosis. Knies asserts that the muscarine found in toadstools and fish may cause myosis and accommodative spasm, while the tyrotoxin of fish will cause mydriasis and paralysis of accommodation. This direct corrosive action of toxic chemicals on the delicate structure of the eye is a subject that deserves our closest study.

Pulsating Retinal Vessel Extending Forward Through Vitreous as a Twisted Loop.

Dr. Compton exhibited a young man, Fred S., aged twenty-four years, who, quite unaware that there was anything the matter with his right eye, presented himself complaining of poor vision in the left (6/60), which proved to be due to a high error of refraction.

The right eye, which had a negligible refractive error and a vision of 6/6, proved to be the more interesting. On ophthalmoscopic examination with a high power lens, a slightly pulsating loop of vessels was seen close to the posterior surface of the lens, and could be easily traced to its origin in the center of the optic disk, where it appeared to spring from the lower nasal vein in a close spiral.

The fundus was otherwise normal, and the vitreous quite clear. The long twisted loop was free from superfluous connective tissue and seemed patulous throughout.

T. B. HOLLOWAY, M. D., *Clerk.*

COLORADO OPHTHALMOLOGICAL SOCIETY.

(Meeting of February 18, 1911, in Denver.)

DR. WILLIAM A. SEDGWICK, Presiding.

Hemorrhagic Neuroretinitis.

Dr. G. H. Strader presented a man of thirty-one, with a history of typhilis contracted in July, 1907, and treated at one of the hot springs resorts. In July 1910 severe persistent pain had developed in the right occipital region. On the following December 19th an osteopath operated on and packed the nose with gauze. Two days later vision was suddenly lost, and a marked neuroretinitis of each eye was found on examination. Iodides were administered, 15 to 90 grains t. i. d., followed by mercury. Aspirin, 60 to 120 grains three or four times a week, was also given. Nasal suction had always relieved pain, and its use was followed by increase of vision from fingers to 20-200. The specific treatment had shown no appreciable benefit.

Discussion.—Dr. Hosmer would consider the possibility of cerebral involvement if there was marked choking of the disk.

Dr. Neeper related two cases of syphilitic papillitis, one binocular and the other monocular, with blindness. Vision was restored after cleaning out the ethmoids and sphenoids.

Dr. Walker thought this case would show syphilitic ethmoidal or sphenoidal involvement.

Dr. Strader had found the sphenoid usually involved in cases of severe occipital pain.

Optic Atrophy.

Dr. D. H. Coover re-exhibited the little girl shown before the Society in December 1910, with retrobulbar neuritis of the left eye. Atrophy supervened. The left ethmoid had been emptied of

a small amount of muco-pus, without benefit to the eye. Two or three weeks later the vision of the right eye suddenly became involved, and had failed rapidly. Optic neuritis was now established in this eye. The child was unduly stout, but physical examination was negative. The family history was good.

Dr. C. E. Walker presented an undersized youth of twenty, showing double optic atrophy. No syphilitic taint was evident. All the boy's uncles were undersized, and his father was reported to have been a victim of alcoholic insanity. The patient was of the neurotic type. As a child he had external rectus paralysis, from which he recovered. At seventeen years examination showed emmetropia, orthophoria and $V = 20/20$. In December 1910 diabetes insipidus was found. The right eye turned up and out, causing diplopia and nausea. R. V. = fingers at 6 inches, L. V. = $20/200$. Appropriate treatment for two months had been followed by R. V. = fingers at 6 feet, L. V. = $20/50$.

Discussion.—Dr. Jackson suggested hypophyseal involvement, with underlying fault of nutrition, in both these cases.

Dr. Neeper's first impression of these cases was of hypothyroidism, though it was not cretinism, evidently. He thought a latent toxemia possible, and would have the cutaneous test made for tuberculosis and the Wasserman reaction taken.

Traumatic Mydriasis.

Dr. D. A. Strickler showed a boy of 14 years who had been struck on the left eye two weeks before, the blow resulting in a dilated pupil, without diminution of central vision. An area of choroidal disturbance, with pigmented margins, was seen one disk diameter above and about the size of the nerve head, but quadrilateral in shape. Dr. Strickler desired an expression of opinion as to the probable cause of the choroidal change, and the permanency of the mydriasis.

Discussion.—Dr. Neeper judged the choroidal lesion to be of long standing and thought it might be two or three months before the pupil returned to its normal size. He believed the circular fibres were damaged, perhaps some of them ruptured: that they healed and that their function was restored by light reaction.

Dr. Jackson said that the pathology was unknown: probably paralysis of the nerve endings. He thought recovery probable in this case.

Dr. Coover related the case of a boy whose pupil became dilated as the result of a blow, last July, and was still larger than its fel-

low. He believed traumatic mydriasis might or might not be followed by recovery, and that cataract was likely to develop later. He attributed the dilatation to damage to the ephincter pupillae.

Dr. Walker believed that the ciliary branch of the third nerve was affected; and had noted full recovery in some cases, but only partial in others.

Dr. Crisp related a case in which the reduced accommodation and enlarged pupil still persisted four months after a blow on the face.

Drs. Bane, Jackson and Libby thought the choroidal lesion was an old one.

Iridodialysis.

Dr. Strickler also showed a man of twenty-one who had been struck in the left eye, June 13, 1910, resulting in severe intraocular hemorrhage and iridodialysis involving about one-third of the circumference of the iris. The case rapidly improved until vision reached 20/50, a slight vitreous haze from hemorrhage debris remaining. Two months after the injury the patient contracted syphilis; and three months later L. V. = 20/100. The lens capsule had a peculiar wavy appearance, which Dr. Strickler thought accounted for the decreased vision and probably presaged traumatic cataract.

Discussion.—Dr. Jackson thought this lens would probably become opaque.

Dr. Walker said that capsular rents did not necessarily cause opacity of the lens.

Dr. Strickler spoke of a case of traumatic lens opacity which had cleared; but cataract subsequently developed.

Dislocated Ring-Shaped Opaque Lens.

Dr. Edward Jackson presented a man of fifty-six, with dislocation of the lens into the anterior chamber. In boyhood the eye had been struck. Light perception only remained. A much more recent blow was followed by change in the appearance of the eye. The lens was mostly opaque, the shape of an incomplete ring or horseshoe; faint fundus reflex through a membrane showing within the arms of the "horseshoe." The outer margin of the ring was fairly transparent. It resembled the reformed ring of lens substance, seen in the eyes of the lower animals after removal of the crystalline in early life.

Discussion.—Dr. Walker noted that the dislocation was inward as well as forward. He had never seen regeneration in a human opaque lens.

Dr. Bane considered it remarkable that there should be nutrition of a dislocated lens, still more so regeneration.

Motor Oculi Paralysis.

Dr. H. R. Stilwell showed a man of thirty-five who had suffered from divergent squint of the right eye for ten years, with ptosis of right upper lid and binocular mydriasis for the past five years. He contracted malaria five years ago. Two operations for the strabismus had been fruitless. The patient denied syphilis, although he admitted having had both gonorrhoea and venereal "warts" at the same time (1893). He had been under "mixed treatment" for the past four weeks, without appreciable effect on ocular conditions mentioned.

Discussion.—Drs. Walker and Bane diagnosed paralysis due to involvement of the third nerve. Dr. Walker said that advancement of the internus as well as tenotomy of the externus was necessary in these cases; and he thought syphilis, not malaria, was the etiological factor in this case.

Dr. Strader thought gonorrhoea and syphilis had been associated.

Drs. Jackson and Coover believed there was a central syphilitic lesion.

Dr. Neeper related a case of induration on the penis one month after exposure, with iritis following. The Wasserman test was positive. Under mild antisiphilitic treatment recovery took place.

Dr. Libby reported a case very recently examined, of monocular complete ptosis of three months' duration and divergent squint of one month's standing, with vision of 5/12, in a woman of thirty-seven. Syphilis was thought to be the probable causation. (Later note: the ptosis disappeared under three weeks of specific treatments.)

Epithelioma of the Lid.

Dr. Walker presented an adult of middle life from whose upper lid he had removed an epithelioma, doing a plastic operation. A small crescentic piece of cartilage and much skin and subcutaneous tissue was removed. There was very little deformity, and healing was complete except possibly one point on the lid margin.

Discussion.—Drs. Coover, Jackson and Libby advised use of the X-ray.

Dr. Crisp suggested "scarlet red," stating that a remarkable formation of epithelium followed its use. After its use in epithelioma of the lower lid cicatrization had occurred in a week.

Dr. Hosmer had seen favorable results from the use of X-rays after the excision of epitheliomata, and believed their use was good practice.

Embolus of Central Artery.

Dr. Coover showed a young woman who had recently had an obstruction of a nasal branch of the central artery of the retina; preceded for years by transient attacks of blindness in that eye. Twenty-four hours after the obstruction occurred there was seen a sharply defined edema surrounding the blocked vessel. Massage, nitroglycerin and amyl nitrate proved of no help. After the use of the high frequency current daily for ten days vision rose to 6/10. The nasal branch was obliterated, and adjacent vessels were thickened. There was a mitral murmur and history of chronic appendicitis.

Persistent Pupillary Membrane.

Dr. Libby showed a man of fifty with a band of membrane one mm. broad extending horizontally across the left pupil, with two bands (one thread like) running vertically upwards; all being attached to the anterior surface of the iris. The corner of this eye was 10 mm. in diameter, while the other measured 11 mm. The right pupil contracted to 2.25 mm., the left to 1.5 mm., in bright daylight. Dilatation of the left pupil was very limited. With correction, R. V. = 5/5 +, L. V. = 5/15. Myopia and moderate astigmatism were present in the right eye, and high astigmatism in the left.

GEORGE F. LIBBY, Secretary.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF MONDAY, FEBRUARY 6, 1911.

DR. S. D. RISLEY, CHAIRMAN.

Dr. W. C. Posey exhibited a case of bitemporal hemianopsia in an unmarried woman of 31 years. The patient had been in fair health until April, 1909, when her menses stopped without apparent cause and her vision began to fail, that of the right eye deteriorating some weeks prior to that of the left eye. She has not menstruated since and her sight has steadily decreased. The loss in vision was unattended by any signs of ocular inflammation, nor by headache or other symptoms of increased intra-cranial pressure, but by drowsiness, which has been a pronounced symptom for a year past. Her sense of smell is acute. An X-ray shows no visible

tumor, nor are there evidences of sinus disease. The ophthalmoscope reveals secondary optic atrophy in each eye, and a study of the field shows bitemporal hemianopsia; the field in each eye being represented by small triangular areas in the upper nasal portion. A diagnosis of disease of the chiasm of unknown nature has been made and potassium iodide with suprarenal extract has been prescribed. Vision in the right eye 2/60, in the left, finger counting at one meter. These signs have persisted from the time of the first examination except that the fields are somewhat more contracted. Dr. Posey said that although Dr. Cushing in a recent letter to him had spoken most encouragingly of the results which he had obtained by surgical measures in a number of cases of chiasmal disease, he could not bring himself to advise operation in this case, as he thought it not unlikely that the small portion of field which remained might be destroyed by the surgeon or life itself threatened, whereas, slight though it is, the patient might still retain her vision for a long period.

Dr. Posey referred to two other cases of bitemporal hemianopsia which had been recently under his care. The first, in a woman of 62, who had noticed a blur over the nasal half of the median line of the left eye for one year previous to examination. She had previously seen Dr. Cutler, of New York, who had made a diagnosis of optic atrophy. The dimness of vision in the left eye disappeared under the administration of potassium iodide, but six months later the vision in the right eye became similarly affected. Vision was reduced in the left eye to 4/40 and in the right to 5/15. Both fields showed temporal hemianopic contractions. Extreme diminution of the light sense was complained of and demonstrated by the Bjerrum type. Considerable variation occurred from time to time in the extent of the fields. Supraorbital headache, usually on the left side, had been present for years. Other symptoms of intracranial growth were absent. There was a pronounced rheumatic history, the patient having suffered from sciatica and muscular involvement. A diagnosis of atrophy of the optic nerves, secondary to chiasmal disease, was made, the nature of the lesion in the chiasm being in doubt, though it was thought it might be a cyst. The patient's removal to New York brought her once more under the care of Dr. Cutler, whose report of the post mortem which followed shortly afterwards is as follows:

"The autopsy showed a round aneurism the size of a line pressing upon the chiasm. It sprang from the left internal carotid,

just after it penetrated the dura and before it divided to form the anterior and middle cerebral. The presence of a small quantity of old extravasation as well as a quantity of fresh blood showed that the leakage must have continued for some time."

The second case, a man of 35, excellent general health, had complained of dimness of vision for about two years prior to consultation. There had been but little headache and no symptoms of cranial growth had been complained of. Both fields showed characteristic bitemporal hemianopsic limitations, which varied but little in extent during the six months the patient had been under observation. An X-ray examination showed a distinctly abnormal appearance in the region of the pituitary fossa which seemed to face almost directly posteriorly. Dr. Pancoast thought that this appearance might arise from the pressure of a growth.

Dr. S. D. Risley, in commenting on the subject of bitemporal hemianopsia, detailed the history of a case in a woman aged 65—the mother of four healthy children, who, until two years before had been in good health. She had never suffered from any serious disease and still regarded her health as perfect. There was neither albuminuria nor glycosuria.

Two years ago she found it difficult to follow the lines of print while reading and consulted her oculist who found impaired central vision and concentric narrowing of the fields of vision which steadily progressed. She was then seen by an eminent internist, who treated her for anaemia, but without any improvement of the ocular conditions. On October 10, 1910, she was seen by Dr. Risley in consultation with her attendant when it was found that she had bitemporal hemianopsia with a paracentral scotoma in the retained visual area in the left eye and well advanced atrophy of the nasal half of both optic nerves. Wernicke's pupillary inaction was observed in each eye when light was thrown upon the nasal half of the retina. Vision in the right eye, 6/xxx, in the left 6/lx—, with eccentric fixation, the macula being included in the blind field. The woman had a large, mask-like, face, a massive torso; and the hands and feet, especially the feet, were very large when compared to the size of the limbs. The patient was drowsy—often fell asleep even while eating. Loss of the sense of smell was complete and the patellar reflexes and ankle clonus were absent. Roentgen plates showed marked change in the size of the lesser wings of the sphenoid bone and the sella turcica was

converted almost into a foramen by the enlargement of the sides. No tumor of the soft parts could be made out.

Dr. Risley said he had regarded the case as one of acromegaly; in which opinion he was joined by Dr. C. K. Mills, who also saw the case in consultation, when he gave an unfavorable prognosis as to any prospect of relief by treatment, yet he thought she might retain the nasal fields of vision. This was doubtful because of the possibility that the enlargement of the lesser wings of the sphenoid bone might prove to be progressive in which case the pressure upon the optic nerves in the canal would cause complete atrophy.

Dr. John H. Rhein, by invitation, said that he is interested especially in two of the symptoms described in Dr. Posey's case, namely the drowsiness and exophthalmus. Drowsiness is frequently seen in tumors of the Pituitary body. In one case in the literature the patient slept for seven months. Somnolence occurred in thirty of the 145 cases which he collected in a review of the literature of the subject. Exophthalmus has been observed in a small number of cases, its significance, however, may be greater than has hitherto been recognized: it was persistent in a case which he reported before the Pennsylvania Medical Society in October, 1910. The diagnosis of tumors of the Pituitary body offers great difficulties, because of the fact that they often cause no symptoms, the presence of the tumor not being suspected during life, but is found only at the autopsy. Symptoms referable to the eye, are noticed almost in one-half of the cases, indeed, the most characteristic symptom of tumors of the Pituitary region is bitemporal hemianopsia.

The onset of acromegaly without disturbance of vision, does not necessarily mean that there is a tumor in the Pituitary region, because there are a number of cases on record in which the Pituitary body was not diseased at all. Aside from the bitemporal hemianopsia, there are no other distinctive localizing symptoms. The third nerve is involved with only moderate frequency, and the senses of smell, taste and hearing are but rarely implicated. The absence of pressure symptoms is explained in some cases by the fact that the growth of the tumor has been slow and that the adjacent structures adapt themselves to the gradual increase in size of the tumor.

Headache and vomiting are less frequent *than in tumors* in other parts of the brain. Choked disc may be present though atrophy of the optic nerve is the more usual lesion.

While operative procedures are difficult and attended with

great risk, a number of cases have been successfully operated upon recently, and Rhein believes that an operation should be advised under certain conditions, especially when it can be decided that the tumor is showing progressive tendencies.

Dr. Zentmayer said that there were two symptoms of bitemporal hemianopsia deserving of emphasis—unusual variations in the field of vision and, in women, early, permanent cessation of the menstrual function. He cited a case under his observation for 19 years. At first there was hemianopsia for color only, later for form also. Later a quadrant was regained only to be subsequently lost. After 19 years the field again enlarged so that it was of an irregularly contracted form. Vision which had remained 5/15 for a greater part of the time rose to 5/6 at the time of the increase in the area of the field. As remarkable as this case seems it is not unique, for Packard reported a similar case several years ago. Dr. Spiller's explanation of this phenomenon is that pressure upon the chiasm is relieved by the tumor breaking through into the ventricle. While this is probably true it fails to explain how nerve fibres which have had their function in abeyance for 19 years could regain their conductivity.

Dr. W. C. Posey exhibited a case of specific uveitis which showed remarkable benefit from the use of salvarsan. A married woman of 22, who had had a miscarriage at 6 weeks and now has two children living and well, born at full term. There is no family nor personal history of tuberculosis or of syphilis. The eyes were first affected in November, 1909, the inflammation persisted with great intensity until June, 1910. After five months of comparative quiescence, the acute symptoms reappeared and have continued with marked severity until the present time.

Both eyes were affected from the first, the inflammation taking the form of a diffuse uveitis. When first seen by Dr. Posey in December, 1910, the corneas were diffusely hazy and there were irregularly shaped areas of opacity which gave one the impression of tubercular deposits throughout the substantia propria. The pupillary areas of the cornea, however, were free. The pupils were occluded, dense annular synechiae had bound the irides down to the capsule of each lens so that the irides were partially bombé. The tension of each eye was elevated, that of the right being greater.

While the clinical appearance suggested tuberculosis as the causal factor, it was thought wiser to submit the patient to a more thorough examination. The wisdom of this was soon manifest, as

a carefully applied tuberculin test proved negative, while the Wasserman reaction was positive. Upon admission, the vision equalled counting fingers at $1\frac{1}{2}$ metres, in the right and at 1 metre in the left. Tarsal and ciliary injection were intense and there was marked photophobia and lacrimation. The patient was markedly cachectic, the blood examination showed erythrocytes 5,880,000, leucocytes 9,200, hemoglobin 80%. There was a heavy cloud of albumen in the urine and some hyalogramular casts. After consultation with Dr. Eshner, who had noted rough breathing at the left apex, the patient having been subjected to months of antisyphilitic treatment without avail, she was given potassium citrate. *Liq. ferri et ammonii acetatis*, and quinine and strychnia. Weak solutions of atropine and pilocarpine with dionine were used alternately and hot compresses locally. The patient was nursed very carefully, yet notwithstanding all efforts her ocular condition remained unchanged. At the end of a month, the internal medication just mentioned was discontinued and mercury and potassium iodide represcribed. The ocular inflammation, however, failed to respond and 10 days ago an intravenous injection of salvarsan was made by Dr. Schamberg. After the lapse of 48 hours a marked improvement took place and 4 days later, the eyes became almost free from injection. The lids could be opened wide, and the vision in each eye rose to counting fingers at 2 meters. The eyes became reinjected about 10 days after the salvarsan was administered, so on the eighteenth day after the injection was given a second was made by Dr. Schamberg, and this, too, was followed by a marked improvement in the ocular symptoms. The patient has gained in weight; and the examination of the urine daily, shows that the albumen and casts are diminishing.

Dr. S. Lewis Ziegler exhibited a boy of 9, whose left eye became inflamed six weeks previously, with intense photophobia, lacrimation, and diminished vision. Two weeks after this the right eye became inflamed. Both eyes now show typical interstitial keratitis. He was admitted to the hospital December 5, 1910, and one week later was given a subcutaneous injection of salvarsan, which produced a slight improvement. On February 1, an intravenous injection was given. A Wasserman test proved to be strongly positive.

Dr. Jay F. Schamberg, by invitation, in discussing the technic of administration of salvarsan and the ocular complications attending the use, said he believes there is a consensus of opinion that sal-

varsan should be given by intravenous injections rather than by intragluteal or subcutaneously, for it is usually painless, and the influence on the disease becomes more prompt and more profound. The solution must be absolutely clear, as flocculent solutions may cause fatal collapse. A clear solution cannot be obtained unless the physiologic salt solution, used as a diluent, is made of distilled water and chemically pure sodium chloride.

The injection is sometimes followed by vomiting, and for a brief period, a moderate rise of temperature. Injections can be repeated in ten days or two weeks. In appropriate cases the danger from such injections properly given is very slight. In the vast majority of cases the remedy has a perfectly marvellous influence on the lesions of syphilis. It cannot yet be counted to "cure at one stroke." It will, however, doubtless abridge the course of syphilis and increase the rapidity of cure. He believes it will be necessary or at least desirable to supplement its use by the later employment of mercury.

The chief indications for its use are in malignant syphilis; of syphilis involving the brain, larynx or other important organs; in severe lesions of the mucous membranes, and especially in cases in which there is an idiosyncrasy against mercury and the iodides, or in those which have been refractory to the use of these drugs. It has likewise a wonderful influence on syphilitic cachexia.

It is contraindicated in grave cardiac, vascular or renal disease; in advanced degenerative conditions of the nervous system and in optic neuritis, particularly when these are not syphilitic in character.

Good results have been obtained from the use of salvarsan in many luetic ocular conditions including iritis, uveitis, chorioiditis and in severe cases of luetic optic neuritis.

In interstitial keratitis, both successes and failures have been reported. In an almost negligible proportion of cases in the 20,000 cases so treated, subsequent involvement of the optic and vestibular nerves has been reported. These have in large part occurred after the treatment of secondary syphilis chiefly, and undoubtedly in patients who have not received intravenous injections. A patient of Schamberg's developed a choked disc 7 weeks after a subcutaneous injection. She had misty vision and severe headaches before the injection. Under vigorous treatment with potassium iodide and inunctions of mercury her vision has improved. He is of the opinion that in most of the cases reported, the nerve trouble is

syphilitic in nature and due, at least in part, to the cessation of treatment after the use of the salvarsan. It is barely possible, in rare instances, that the drug may have sensitized the nerve tissues to the remaining syphilitic poison.

Dr. Posey showed a case of double papilloedema from supposed sphenoidal disease. The patient, a miner and a Slav, aged 55, from whom it has been impossible to obtain a satisfactory history, stated that when 18 years old he was struck on the head and rendered unconscious. Blood flowed from the left ear and his hearing on that side became much impaired. He indulged in tobacco and alcohol freely until one year ago, at which time the vision began to fail, and he became much disturbed by vertigo and headache. He became nauseous but did not vomit. The headache was confined to the temporal and occipital regions. The loss of sight appeared first in the right eye and progressed until blindness ensued some few weeks before consultation, and the vision of the left began to fail some months after that of the right eye. An examination revealed moderate papilloedema without hemorrhages or extra vasations in each eye, though it was more pronounced in the right. The fields were concentrically contracted both for form and for color. The right eye was blind, and the vision of the left equalled 5/12. The right pupil was 5 mm. and did not react to light; the left was 4 mm. and was sluggish. The urine was negative. Dr. Watson removed two polypi from the right middle meatus and washed out a quantity of pus from the right antrum. An examination of the sphenoidal and ethmoidal cavities showed both to be unaffected apparently, though a trans-illumination which had been made by Dr. Hansell showed marked darkness under the orbit on the right side and in the right temporal region, while an X-ray examination showed pathological involvement of the sinuses on the right side. Dr. Spiller found distinct diminution of pain and tactile sense over the distribution of the right Vth nerve, and a distinct weakness of the masseter and temporal muscles.

Dr. Posey said that further attempts to detect sinus disease would be made, yet he was inclined to attribute the optic neuritis to retrobulbar pressure, probably just posterior to the foramina, and he thought that the involvement of the gasserian ganglion on the right side might indicate the encroachment of a tumor on that structure or it might be a necrosis of the sphenoid itself.

Dr. Posey presented a man aged 40, an electric mechanician

exhibiting lenticular opacities, believed to have been caused by exposure to an electric spark. The man stated that following the short-circuiting of some electric wires which he was repairing, there was a flash of extremely brilliant light to which his eyes were subjected and as a consequence of which the vision has been failing in each eye. The flash had burned the brows and lashes and the eyes were sore for several days. Beyond this transient burn of lids and eyes, however, there had been no signs of outward inflammation. The accident had occurred a year previously, but the loss of sight was not noted until about two months afterward, and the vision has steadily decreased and is now, the right eye 6/35, in the left, but 6/60. Both lenses contain opacities; those in the right for the greater part, are in the anterior cortex, and those in the left are at the equator. The opacities are made up of a series of fine dots and lines, and scattered here and there throughout the lenses are numerous fine myeline globules. Both corneas are clear; and a careful ophthalmoscopic examination reveals no choroidal lesion. Both fields show concentric contraction for form and for color. There is a specific history dating 20 years back, but nothing else in the personal or family history that could be considered to be a causal factor in the production of any lenticular haze could be learned. The examination of the urine was negative.

Dr. Albert C. Sautter, by invitation, said the electrical injuries of the eye may be caused by exposure to electric light of great intensity, the harmful influence being attributed to the ultra-violet rays by the passage of an electric current through the body. Electric ophthalmia is perhaps the most usual ocular disturbance encountered after exposure to such light rays, a frequent cause being the bright flash which occurs in short circuiting.

Our knowledge concerning the effect of lights, rich in ultra-violet rays upon the lens, is derived mainly from experiments on the lower animals. Parsons and Henderson and others have shown that the lens has a strong capacity for absorbing ultra-violet rays; and they were able to produce pathological changes in the cells of the anterior capsule by exposing rabbits to the light from mercury lamps. Upon the human lens, however, the effects of strong light are still open to question.

Cataract has been observed rather frequently after lightning strokes and although in these cases the light factor cannot be disregarded, electrolytic, metabolic, and mechanical factors probably play an important part, especially since we know cataract may

occasionally follow electric shock without light phenomena. Hess found necrosis of the capsular epithelium and lens opacities after subjecting cats and rabbits' eyes to sparks from a Leyden jar, and he attributes cataract caused by lightning primarily to a necrosis of the capsular epithelium. Kiribuchi confirmed Hess's findings, but attributed the lenticular changes to ciliary hyperemia, and it seems reasonable to suppose that the vascular engorgement which follows lightning or electric stroke may involve the uveal tract, particularly the ciliary body, and thus impair the nutrition of the lens. Keratitis; hemorrhages into the anterior chamber, vitreous, retina, choroid and optic nerve; uveitis; optic neuritis; rupture of the choroid, and blindness from lesions in the cortical centers have been observed after electric shock.

Dr. Ziegler said that the usual effect of electric exposure consisted in a retinal anesthesia, which fortunately was only transitory and function was sooner or later fully restored.

The Chairman called attention to the fact set forth in the history that the opacity of the lens came on only after a long interval. He thought it possible, therefore, that the original injury was in the retina and choroid and that the impaired nutrition of the lens, was to be regarded as a sequel to the retino-choroiditis. In the cases of impaired vision he had seen following flashes of strong light or protracted exposure, as in testing lights, observing eclipses of the sun, etc., he had found a fogged retina and a general fluffiness of the fundus, suggesting a mild edema, and when this cleared up there often was found more or less permanent injury in the macular region. In reply to a question relative to a case he had reported in October, 1910, Dr. Risley remarked that in that case there was no visible injury to the eyes, although the man was blind. The electric current from a trolley wire had passed through the patient's body from his miner's lamp to the wet earth. He regarded that case as one of central blindness and that probably an edema of the cortical visual centers was present, resulting in serious and probably permanent injury. He called attention to the views of Mr. Parsons presented at the St. Louis meeting of the Ophthalmologic Section of the American Medical Association, regarding the effects of light on the crystalline lens, yet no case of impairment of its transparency which he could rationally attribute directly to the effect of light had fallen under his own observation, unless indeed the case now presented by Dr. Posey could be attributed to this cause.

Dr. Crampton showed a little child with vaccinal ulcers on the lids of one eye. As the local reactions were singularly slight for such ulcerations the question arose as to whether or not they might have been caused by a transference of virus from the seat of primary vaccination.

Dr. Schamberg believes the two lesions upon the eyelids to be vaccinal, doubtless produced by accidental external autoinoculation. He said it would be most remarkable for such a condition as this to result from a haematogenous deposition. This case seems to be following Bryce's law, that secondary autoinoculated vaccine lesions usually run a more rapid course than the original pock.

Dr. Radcliffe exhibited a case of paresis of the external rectus, believed to have been caused by a contusion. The patient was a young woman with a high grade of compound hyperopia, of unequal degrees of astigmatism, who struck her left eye on the back leg of a chair. The contusion had been slight, but there followed immediately after the accident complete paresis of the external rectus. After the persistent use of ice compresses, atropia and calomel, and of the application of electricity, the vision has not perceptibly increased, although the paresis is not so great as when first estimated. Radcliffe is inclined to the belief that a hemorrhage into the muscular sheath caused the paresis.

The Chairman was much interested in this "unusual history. In the absence of signs of a deeper lesion, it was difficult to explain the origin of a palsy due to disturbed innervation produced by a blow delivered on the terminal distribution of the Sixth. The case presented the usual features of strabismus convergens. He thought the greater error of refraction in the converging eye suggested that the injury to the external rectus and the resulting tenderness had induced the temporary return of a concomitant convergence which had existed before the correction of the refraction error. At present, when the other is closed, she can move the eye outward to the limit of the fixation field, and sufficient time has elapsed for the disappearance of the soreness of the abducens produced by the injury. Dr. Risley was therefore disposed to regard the case not as a true paralysis, but as a recurrence of a formerly existing strabismus.

Dr. Ziegler showed a large foreign body which he had removed from an eye-ball. Twenty-four hours before he was admitted, the patient, a laborer, aged 31, while cutting a nut with a hammer and chisel was struck in the eye by a flying piece. When seen on Janu-

ary 13, at the hospital, he had a large triangular wound of the cornea, 5x7 mm., just below the upper limbus; the remainder of the cornea being clear. The iris had prolapsed and there was a large jagged wound of the iris above. The lens was only slightly opaque. The anterior chamber was obliterated, and there was intense swelling of lids, with chemosis of the conjunctiva. V = 1 pc. Under cocaine anaesthesia a piece of steel weighing 24 grains, and measuring 11x6x4 mm., was extracted by a Parker magnet.

Dr. Ziegler presented the man with tuberculosis of the cornea he had exhibited 3 months ago. The man is about 50 years of age and has had inflamed eyes for many years. The symptoms of tuberculous disease have existed for only a few months. Since last May, he has been given about 15 injections of old tuberculin, at intervals of ten days, in doses ranging from $\frac{1}{2}$ to 2 minims. In May, 1910, the vision of the right was 10/200; of the left 20/200; at present both eyes are quiet and the corneas are clearing rapidly. There has been a decided gain in weight and in the general health. No reaction has followed the last three injections. The vision now is 20/200; 20/70 respectively. BURTON CHANCE, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of February 16, 1911.

The President, Dr. H. W. Woodruff, in the Chair.

Further report of an Orbital Tumor of ten years' standing: Endothelioma.

Dr. C. A. Leenheer presented a woman of 34, whom he had exhibited at a meeting of the society five years ago. The patient had an endothelioma of the orbit which had been growing for about ten years. Examination at the present time, nearly six years after the Kroenlein operation had been performed, shows that the eye protrudes above as much as before the operation. The lids cover the cornea, conjunctiva injected; pupil does not react to light; there is secondary optic atrophy; general health is good. Since the operation, she has had three children. There has been no evidence of metastasis. Pathological examination by Dr. Zeit showed a *hemangio-endothelioma perivasculare*.

Dr. Richard J. Tivnen, in discussing the Kroenlein operation, inquired if Dr. Leenheer had had any difficulty in separating the bone with a chisel.

Dr. Leenheer replied that the operation had been performed by Dr. Schroeder without difficulty.

Patient With Unusual Fields of Vision.

Dr. Thomas Faith reported the case of a woman of 23 with irregular constriction of the form fields. The field for red was constricted in the upper portion and those for red and green could be seen only in an area of 20 degrees in the inner, lower and outer fields. There was an absolute central scotoma for green and blue. There was no evidence of fundus lesions, nor were there any manifestations of hysteria or insular sclerosis. Vision equalled 20-50. The fields taken repeatedly showed the same result.

Unusual Case of Buphthalmus.

Dr. Major H. Worthington showed a girl of 18, who entered the service of Dr. Willis O. Nance at the Illinois Eye & Ear Infirmary several weeks ago, with a large buphthalmus of the left eye. The eye is about two and one-half times larger than normal. The thinned sclera presents a decided bluish tint throughout the entire anterior ocular segment. Tension is normal and vision equals shadows. The patient was seen nine years ago by Dr. E. K. Findlay, who diagnosed the case as one of tubercular keratitis. An iridectomy had been done in 1905 by Dr. T. A. Woodruff, which brought about a reduction in the ocular tension, and improved the then existing vision. The increase in the size of the eye, as noticed by members of the patient's family, has rapidly increased for six years; the right eye has a decided thinning of the anterior structures with bulging and appears to be taking the same course as the left. Vision in this eye is reduced to the perception of shadows. Von Pirquet tubercular test was positive. Therapeutic doses of tuberculin are being administered. Dr. Worthington believed the prognosis to be exceedingly grave.

A Case of Antepartum Purulent Ophthalmia.

Dr. Willis O. Nance reported the case of an infant who entered his service at the Eye & Ear Infirmary one and one-half days after birth with the following history: Three hours after birth, as seen by Dr. Hugh Blake Williams, the eyelids were swollen and red, the bulbar conjunctiva was deeply injected and a thin pus was exuding from both eyes. This condition was observed by the attending obstetrician at birth. The mother had had a profuse leucorrhoea for several months. One week before labor, there had been rupture of the amnion with discharge of waters. The baby weighed four pounds. After admission to the hospital, the ocular symptoms increased in severity and both corneae became involved, one of which perforated with evacuation of the lens. At no time

was it possible to demonstrate the gonococcus. The patient was discharged from the hospital three weeks after admission. The cornea of one eye is clear except for a small scar. The other is leucomatous.

The case is the second one of antepartum ophthalmia that Dr. Nance has observed, the other being one that he reported to this society in 1907.

Dr. Thomas Faith was called to see a patient with antepartum conjunctivitis several years ago, in consultation with the attending physician. There was a well-marked purulent conjunctivitis at birth. The bag of waters had ruptures several days (five days?) previous to labor. The gonococcus was demonstrated in the discharge from the baby's eyes. The case ran a favorable course and terminated with a slight opacity of one cornea only.

Dr. H. S. Gradle inquired whether the genitalia of the mother, in Dr. Nance's case, had been examined and whether there had been any specific stains used on the secretion of the child, or if examination for the chlamydozoon of Prowazek had been made.

Dr. Nance, in closing, called attention to the study of the disease by Sydney Stephenson and believed with this observer that cases of antepartum purulent ophthalmia are not nearly so uncommon as has been generally believed. He also believed that many of the cases of so-called congenital ocular anomalies, as corneal staphylomata, microphthalmos, corneal opacities, etc., might be accounted for by intranterine infection. In answer to Dr. Gradle's questions he stated that no examination for the Prowazek microorganism had yet been made.

Simple Hypertrophy of the Tarsus.

Dr. M. H. Lebensohn presented a woman of 51 with a swelling of the right upper eyelid, noticed for the first time, a little more than a year ago. There had been no pain at any time and the conjunctiva was and had been normal. The patient came to the Infirmary clinic because she could not open the eye as well as the other. The family and personal histories were negative. The diagnosis of simple hypertrophy was made, as no inflammatory symptoms had ever been observed.

Dr. E. V. L. Brown inquired if the Wasserman test had been made.

Dr. C. J. Swan called attention to a case he had presented to the Society three months ago, which was bilateral, and the tarsi so enlarged that it was impossible to evert the lids. In this case, the specific therapeutic test has been made and also a Von Pirquet

test, both of which proved negative. The patient experienced practically no inconvenience from the condition.

Dr. Lebensohn, closing, stated that no Wasserman had been made. The history is positively negative and besides in specific tarsitis there is an inflammation at some time, a condition which has never been present in this case.

Bilateral Marginal Thinning and Ectasia of Cornea.

Dr. Milton H. Schultz (by invitation) presented a young man of 18, who came to the Eye & Ear Infirmary with a perforation of the cornea of the left eye with prolapse of the iris along the upper inner margin. He gave a history of attacks of inflammation of the eyes occurring off and on for two years. The morning of the entry to the hospital, he was awakened by pain in the left eye. Examination revealed a perforation with prolapse of the iris along the upper inner margin of the left cornea. Eserine $\frac{1}{2}$ per cent and pressure bandage were ordered. Two day later, the patient complained of a sharp pain in the right eye and examination showed a crescent-shaped peripheral ectasia and thinning of the upper inner quadrant of the cornea which seemed in imminent danger of perforation. It was bordered centrally by a saturated gray line of opacity. The bulged portion was translucent and covered with fine superficial branching vessels and distinctly anesthetic.

The left eye then presented an exactly analogous area of peripheral thinning with less bulging. The perforation measures 2x1 mm. at axis 135 degrees and involves the body of the iris from its root to its pupil border. The pupil was pear-shaped. Vision in each eye is practically normal (10/10-3). The ophthalmometer shows an astigmatism of approximately 1. D. Morax-Axenfeld diplobacillus and staphylococcus albus were grown from the conjunctival sacs.

Under pressure bandage and eserine, the marginal ectasis of the right cornea remained unchanged for 10 days, then suddenly and entirely disappeared leaving only a flattened area of very thin cornea. The hernia of the left iris was flattened down to its former height, so that it barely projects over the level of the rest of the thinned area. The tension is a little below normal (9 mm. Schiotz tonometer).

The case is unusual in (1) the early age of the patient (18 years); (2) the entire absence of an arcus senilis, and (3) the disappearance of the ectasia while under observation.

Dr. Oscar Dodd: This case has interested me very much be-

cause of the rare condition and the fact that I have had only one other like it in my practice. The right eye has presented some unusual features. By some error, the eserine was not used for two or three days, there occurring then a marked ectasia with a drawing-up of the pupil, making it oblong. I immediately had the eserine and a compress bandage used, and the next time I saw him—two days later—the pupil was normal in size and the ectasia was much less. The reduction of the ectasia under the use of eserine and bandage has been very marked in both eyes; as the cornea at that point has come back to about the normal curvature.

Dr. E. V. L. Brown said that Seefelder's finding of granulation tissue in the anterior half of the cornea corresponding to the thinned area is of great importance—when taken in conjunction with the fact that scar tissue was entirely absent; if an inflammatory process had preceded, scar tissue would have developed. His finding of extensive fatty degeneration of the portion behind as widely into the clear central cornea just as in arcus senilis is strong corroborative evidence that Fuchs' view that the two processes are similar in nature, is correct.

Cyst of the Orbit with Some Interesting Features.

Dr. Richard J. Tivnen reported a case of tumor of the orbit. Patient had observed about a year and a half ago a localized swelling to the nasal side in the tissue of the upper eyelid of the right eye. It was the size of a small pea, was never reddened, inflamed, painful nor tender to the touch. It has noticeably increased in size since last August. Since the age of 18, patient has had several growths removed from the scalp at different times which were hard "like a stone."

Examination discloses a soft, freely movable mass, slightly larger than a pea, located rather deeply in the soft tissues behind the upper lid just beneath the inner supraorbital arch. The mass does not pulsate, is freely movable, is not attached to the globe or lid structures and is not tender on pressure. No exophthalmos or malposition of globe. Palpebral aperture of right eye is noticeably smaller than that of the left, measuring about 6 cm. in the former and eight cm. in the latter. Vision O. U., 20/50ths.

Inversion of Iris; Pathologic Specimen.

Dr. H. B. Young, Burlington, Iowa: The eye which I have on exhibition was enucleated about four weeks ago because it was totally blind, and in hypertension. It contained a dislocated cataractous lens which floated about like a cork in a bottle of

water and had an intractable corneal ulcer. The history was briefly as follows: R. R., aged 56, a forester, while felling trees 17 years ago was struck on the left eye by a rebounding tree-limb. The pupil was "scattered" and never restored. Two years later vision was lost. There was no real trouble until four months ago, when this eye became inflamed and painful and other eye weak. The eye has been better and worse since then, but never well.

Treatment for a week with pilocarpine and antiseptics without lasting result. The interesting feature in the specimen is the probable inversion of the iris. The lens no longer floats because the 4 per cent formalin in the preservative has produced the fluidity of the contents. The possibility of the dislocated lens acting as a foreign-body was an additional consideration for enucleation. The right eye is no longer weak and the patient expresses himself as in better condition than any time in the past year.

Unilateral Vernal Conjunctivitis.

Dr. C. H. Beard exhibited a woman of 26 with a vernal conjunctivitis of one eye. The disease was of the "mixed" type, being oculopalpebral. Duration of the disease had been two years. The case was unique in that the disease appeared so late in life and was unilateral.

WILLIS O. NANCE, Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the Medical Society's rooms on Thursday, March 9, 1911, Dr. G. A. Berry, president, in the chair.

Mr. Grimsdale showed a case of crystalline opacities in the cornea; two patients in the same family. Mr. W. H. Brailey exhibited a fixation speculum, and Mr. F. A. Juler brought forward microscopical sections of a neoplasm involving the iris, from a case shown November 10th. Mr. Charles Wray showed a sarcoma-like growth in the anterior chamber; 16 years history. Mr. J. B. Lawford, discussing Mr. Wray's case, said there seemed to have been something visible in the anterior chamber for 15 or 16 years, but the patient said that it had increased considerably during the last two years. He thought the most likely diagnosis was that there had been a mole or innocent tumour of the iris, which had now become sarcomatous. If it were sarcoma, there could be only one line of treatment, namely removal. He would be inclined to attempt to remove the growth, and a piece of iris with it, and ex-

amine with the microscope, basing the subsequent procedure on what the microscope revealed. He did not counsel leaving it alone. Mr. Elmore Brewerton showed a case of circoid aneurism, and Mr. Eason exhibited one of relapsing marginal keratitis.

Dr. Hill Griffith read a paper entitled "Three Cases of Optic Nerve Tumour," illustrated with a number of photographs and specimens. He said that two were specimens of intra-dural and one of extra-dural growth. In the first case there had been protrusion of the right eye for seven and one-half years, and when seen the patient had marked protrusion forward of the eyeball. Movements were good except downwards. There was a lobulated swelling between the globe and the inferior edge of the orbit. Distinct resistance was encountered. Vision 16 J. The disc was pale and atrophic. At the operation the eyelids and entire contents of the orbit were removed by a circular incision, the eyebrow being preserved. The cavity was lightly packed with gauze. A month after the operation five Tiersch grafts from the patient's thigh were transplanted into the orbit. When seen recently the orbital cavity was well lined with skin, except at one spot. There was no discharge. Professor Lorrain Smith's report was that there were widely dilated lymphatics and lymph spaces in a matrix of vascular fibrous tissue. The larger spaces were lined with endothelium. In the second case there was marked displacement of the eyeball forwards, which had been noticed a few weeks. There was no sign of inflammation. The pupil only reacted consensually with that of the other eye. There was marked optic neuritis in the affected eye. There were no haemorrhages. He operated 11 days after seeing the patient and removed the entire contents of the orbit in one mass, the eyelids being first reflected towards the nose by means of a horse-shoe incision, the flap being afterwards replaced and sutured. The tumour consisted of small round cells, and the tissue was richly supplied with thin-walled blood vessels, and there were many widely dilated lymph spaces. Especially around the lymph spaces, the nuclei were massed together, and they varied in size and chromatic contents. The third case had had protrusion of the left eye for some years, and latterly it had increased. The eye movements were good. There was recent optic neuritis, with blurring of the edge of the disc all round. There were no hemorrhages. Shortly before the operation the vision had fallen to 6/12, and there was well-marked proptosis. No growth could be felt. The external rectus tendon and outer canthus were freely

divided, and then the growth could easily be felt, obviously surrounding the optic nerve. The entire orbital contents were removed. The growth consisted of cylindrical masses, made up of large epithelial-like cells, with a round central nucleus. He strongly recommended the procedure he adopted in these cases. It was better to remove the lids entirely by a circular incision. The paper was discussed by the President, Mr. Treacher Collins, Mr. Lawford, Mr. Parsons, Mr. Coats, Mr. Frank Thomas, Mr. Wharton, Mr. Jameson Evans, Mr. Doyne, Mr. Mayou, Mr. Johnson Taylor, Mr. Grimsdale, Mr. Harrison Butler, and Dr. Griffith replied.

Mr. Johnson Taylor read a paper on "A Morgagnian Cataract." The patient was an elderly spinster who had had the condition in the left eye 25 years, without any discoverable adequate cause. The eye, doubtless from long disease, had become amblyopic, and, though the direct pupillary light reflex was quite brisk and the tension normal, the projection was very defective. During the operation, which was a difficult one, owing to the sunken state of the eye, the small size of the cornea, and the narrowness of the palpebral aperture, no trace of a nucleus was discovered, the whole lens was found transformed into a milky fluid with the exception of some inspissated material lining the capsule, which was removed by repeated introduction of iris forceps; after a subsequent needling the vision was 5/12 (most) and 1 J. Two points were insisted upon (a) that operation should not be refused just because the projection was bad, if the direct pupillary light reflex was brisk and the tension normal, especially in a long-standing case; (b) that prevention was better than cure, and that, as a general rule, one-eyed cataracts should be operated on before getting over-ripe, (except in persons of advanced age and those the subjects of serious disease), although the other lens was perfectly clear, the advantages of such procedure must counterbalance the disadvantages and possible risks.

Messrs. Frank G. Thomas and George Coats read a paper on a peculiar form of granuloma of the retina. The patient, a lad of 18 years, became ill in March, 1908, with influenza. Afterwards he developed pain in the hypogastrium and suffered from retention of urine and pyrexia. He had severe pain in the left brow and became drowsy and irritable. Routine examination of the eye showed, in the region of the left papilla, an area resembling a greatly enlarged disc, and consisting of a central flat structureless

portion, of the color of fundus elsewhere, surrounded by a ring of swollen nerve fibers. The retinal vessels emerged from the inner edge of this ring. The right fundus was normal. Subsequently a discharge from the left ear developed and he recovered. Nearly two years later he came to the hospital again. The eye was blind and glaucomatous, the anterior chamber very shallow, the retina detached. Enucleation was therefore performed. Pathologically an oval yellow mass measuring 4 mm. by 2.5 mm. was found in the stalk of the detached retina close to the papilla. The growth was purely retinal, and consisted of densely crowded cells, mostly slightly elongated. There was very little stroma and no organization within the mass, but on its vitreous surface a small quantity of old organized tissue was found. The iris stroma was atrophic, and many small new-formed vessels were present on its anterior surface. The corneo-iridic angle was occluded. Looking to the histological characters alone the growth resembled a sarcoma more than a granuloma, but this diagnosis seemed improbable in view of its small size and slight amount of growth in two years. Moreover primary sarcoma of the retina was unknown. An inflammatory origin was therefore probable, perhaps associated with the illness from which he had suffered—an illness accompanied by fever and a septic focus in the ear. On the other hand had there been a septic metastasis in the retina one would have expected, after two years, a fully organized cicatricial mass, not a richly cellular tissue; moreover, there seemed to be evidence of slow progression during these two years. The histological characters did not accord well with an origin by retinal or subretinal hemorrhage.

C. D. MARSHALL, F. R. C. S.

MEETING OF THE OPHTHALMIC SECTION OF ST. LOUIS MEDICAL SOCIETY.

(March 1, 1911.)

Dr. M. H. Post, Presiding.

Complete Traumatic Aniridia and Lens Injury of the Right Eye.

Dr. John Green, Jr., presented a patient with Complete Traumatic Aniridia and Lens Injury of the Right Eye; recovery with useful vision.

The patient, a carpenter, aged 25, while engaged in nailing together a wooden trough, about an hour previous to examination,

was struck in the eye by a 16-penny nail, which immediately dropped to the ground. Examination revealed an irregularly "T" shaped perforating wound of the cornea, just within the lower inner limbus. The vertical arm of the "T" occupied about the center of the transverse arm, and extended downward just to the sclero corneal margin. The anterior chamber, which was nearly free from blood, contained no iris tissue save a few shreds at the nasal margin.

Ophthalmoscopic examination showed that the lens had been penetrated in the lower third, and that there were a few fine floating shreds in the anterior portion of the vitreous. The fundus details were faintly visible through the upper portion of the lens. The zonula of Zinn was visible throughout the entire lens periphery, except below, where the wound of the cornea made it impossible to get a view of this portion. Tension very much diminished, in fact the globe was decidedly soft.

Right eye vision-motion of hand at $1\frac{1}{2}$ meters. Left eye vision, 5/5 plus. Under local anesthesia the contused edges of the "T" shaped wound were clipped off, the very small quantity of blood that was to be seen in the anterior chamber, evacuated, and an occlusive dressing applied.

The following day there was some chemosis below, the wound looked perfectly clean, the anterior chamber was restored, and vision was the same as the preceding day. From this time on, the patient made an absolutely uninterrupted, uncomplicated and painless recovery.

Treatment consisted of saline irrigations and occlusive dressing, with protiodid of mercury, $\frac{1}{8}$ grain, internally three times a day. About six weeks after the injury the lens was found to be quite clear centrally, but marked by several peripheral strips of opacity. The vitreous contained a small number of floating shreds.

Spectacles were prescribed as follows: Right eye, a black disc with a 2m. m. circular opening. Left eye, + 1.5 cylinder axis 90. With this arrangement R. V. 5/10 +; L. V. 5/5 +.

Patient wore this arrangement for several weeks and found it a help in the bright light which was dazzling to the aniridic eye. Recently, however, he has found that the right eye has perfectly adjusted itself to its irisless condition, and he is able to work in the brightest sunshine without discomfort.

It is, of course, possible, that the lenticular opacity may eventually increase, through there has been no sign of any such process during the past four weeks.

Mayou has recently called attention to the fact that the disappearance of the iris after injury may be rather apparent than real. He has found that in such cases the iris is retracted into the angle of the anterior chamber by the organization of fibrous tissue on its surface. If the iris does not disappear until some time after the injury, it is practically certain that it has been drawn back in the manner described.

Another cause of apparent aniridia is the case of an incarcerated iris which has been swept into a scleral wound by the escaping aqueous or lens. In severe injuries the iris may be bodily carried away by the sudden expulsion of the aqueous and lens, or rarely, through the forcible expulsion of the aqueous alone (without displacement of the lens).

Recovery with preservation of vision is more likely to occur when a complete avulsion of the iris has taken place.

If fragments of the iris be caught in the wound, a subsequent cyclitis is more likely to occur through inflammation spreading into the globe along the track of the incarcerated iris, or an ingrowth of epithelium may give rise to the formation of a fistula.

A rare cause of apparent aniridia is retroflexion of the iris, i. e., a doubling back of the iris on the ciliary body. This form is always associated with forward dislocation of the lens.

Finally by reason of the rupture of the pectinate ligament, the ciliary body and iris may be dislocated backward to nearly the equator of the globe, so that the pupillary margin only reaches forward to the corneo sclerotic junction. In this type of injury therefore, the aniridia is only apparent.

Dr. Green believes that in the case presented, the roughened point of the 16-penny nail became engaged in the iris tissues which was forcibly avulsed when the nail dropped out of the eye.

Remarks by Dr. Green, after demonstration of patient.

I am afraid I did not make myself quite clear in regard to penetrating injuries with magnetizable fragments where the wound of entrance is back of the ciliary body. In my experience after the magnet operation the globe can frequently be preserved, but generally **without much vision**. Dr. Saxl's statement that he removes all contused tissue where that is possible meets with my hearty approval. In iris injuries I am in the habit of doing as broad an iridectomy as I can. Infection sometimes occurs from the lacerated margins of the corneal wound so I have made it a rule to trim away, i. e., bevel the edges of the wound, with sharp curved scissors. In one or two cases I have drawn up a con-

junctional flap to cover the corneal wound and with the best results.

I believe the section should exert its influence with managers of foundries and other shops where the eyes of the workmen are exposed to hazards incident to the manipulation of machinery, to secure the installation of safety appliances. A subsidiary of the Steel Corporation in Worcester, Mass., has a "Department of Safety," which investigates all accidents and works out changes to prevent repetition. For instance, they encase their emery wheel in a steel jacket, which holds the fragments of the emery in case it should burst. A plate glass is interposed between the grinding surface and the workman's eyes to prevent the throwing off of tiny emery fragments. Protective spectacles and a sort of a screen-like arrangement are used by the workmen in performing many of the more hazardous operations of the foundry. Eye injuries from a bursting water glass have been prevented by the adoption of a steel jacket which is placed in front of the glass.

J. G. CALHOUN.

**SCIENTIFIC WORK OF EYE, EAR, NOSE & THROAT
SECTION, JACKSON CO. MEDICAL ASSOCIA-
TION, KANSAS CITY.**

March 9th, 1911.

1. Case (clinical), by W. M. Reed, phthisis bulbi left eye. History—Gonorrhoeal ophthalmia some eleven years ago, in which there occurred total loss of vision of left eye. Following healing of scar there has been no pain. Phthisical condition began to be manifest about five years ago. At present time there exists no bulbar pain, but frontal and orbital pain is frequent. The section recommended enucleation to overcome danger to fellow eye from sympathetic ophthalmia.

2. Case (clinical), by J. W. Kimberlin, beginning cataract in the left eye of young woman. Cause not determined.

3. Case (clinical), by J. S. Wever. Right eye extreme myopia, 21 D., with approximately 2 D. of astigmatism. Ability to count fingers at eight feet only with this correction. History—Was picked in the eye by a hen when a small child—got lye in the eye at eight years. Present condition, scar in cornea below and outward from center. Fundus shows snow-white spot $1\frac{1}{2}$ disc diameter at nasal side of disc. Choroidal coloboma (?) In or near the macular region are seen light streaks which are due possibly to choroidal changes. Discision was advised against for these rea-

sons. The absorption at the age of the patient would be too slow, and several operations would have to be performed. Conditions of the choroid contraindicate surgical interference. Should the lens be removed, it is doubtful if vision would be improved.

J. W. SHERER, M. D., KANSAS CITY, Mo.

(1) Report case of optic atrophy. Bilateral horizontal heteronymous hemianopsia. Perimetric chart.

Woman, age fifty (50). Symptoms, subjective severe headache for twenty years, sight failing past five years; now difficult to get around and impossible to do near work.

Vision right eye 1/60. This eye sees the lower half of an object only.

Vision left eye 6/15. This eye sees the upper half of an object only. In the left eye, macular is preserved. Normal tension in either eye.

Patient progressing nicely, on increasing doses of iodides.

Discussion by J. H. Thompson.

This case is one of optic atrophy rather than hemianopsia. Syphilis has a tendency to select certain segments. This is an unusual one. The degeneration takes place first in the retina, ascending from the periphery. No form of mercury so useful in these cases as calomel, $\frac{1}{2}$ gr. of calomel and $\frac{1}{4}$ gr. of opium every two hours, until the desired effect is secured.

(2) Hugh Miller (case report), abstract, Mrs. W. Referred about two years ago. Subjective symptoms severe headache and loss of vision. Examination revealed left lateral homonymous hemianopsia, absolute save a small area corresponding to the macular region. The patient's mentality began to fail—she was taken to hospital, put on full doses of specific treatment with recovery of all symptoms but those of the eye. The Werneke test was employed with an idea of locating the location of the lesion.

Discussion.—Dr. Sherer questions the accuracy of the Werneke test in that it is very difficult to employ.

J. H. Thompson, Subacute or Chronic Irido-Cyclitis. Abstract Paper.

Irido-Cyclitis is the most important in the domain of ophthalmology. The disease begins as an iritis or cyclitis and slowly involves all uveal structures anterior of the equator. Sometimes it follows acute iritis (if the posterior synechia is total), usually it

begins as a cyclitis. There is little or no pain. There is more or less ciliary injection. Patients are slow to admit that there has been even a sense of discomfort in the eye, many times claiming to have no knowledge of trouble until the discovery of floating bodies of clouded vision.

Etiology.—Rheumatism and gout seem to be the chief etiological factors.

Pathology.—Exudate of round cells and the formation of fibrous tissue in and about the iris and ciliary region, a dense opaque membrane frequently forming on the posterior lens capsule. The fluids also may become clouded. Early there is increase of tension, later a lower tension and atrophy of the eyeball.

Treatment.—Must be early if effective. Iridectomy is not indicated. Mercury, calomel in $\frac{1}{2}$ gr. doses, offers the greatest hope, together with atropia and improved diet.

Discussion by Dr. R. J. Curdy. The important thing to insist upon in the treatment of these cases is constant attention. They should be seen almost daily. The patients usually can not understand the importance of so doing when change is so small from day to day and when they are in no way inconvenienced by pain, etc., but if the serious nature of the condition is presented to them, they usually follow instructions. Patient must be kept under observation a long time. Doubts benefit from mercury unless of specific origin.

This year the Oxford Ophthalmological Congress will be held from July 12th to 15th at Keble College, Oxford. It is expected that the newer methods for the treatment of lues, notably slavarsan, will occupy a large share of attention.

Dr. Linn Emerson, of Orange, N. J., recently delivered the lecture on "The Eye in Health and Disease" in the public health series of lectures being given at Newark, N. J., by the Public Education Committee of the Essex County Medical Society.

Dr. Wells Eagleton has succeeded the late Dr. Chas. J. Kipp as medical director of the Newark Charitable Eye and Ear Hospital. Dr. Eagleton was also elected vice-president of the recently organized Academy of Medicine of Northern New Jersey.

Correspondence

THE ELECTRIC OPHTHALMOSCOPE.

New York, April 11, 1911.

To the Editor of the OPHTHALMIC RECORD:

In your issue for February, 1911, page 83 (Report of the Transactions of the Section on Ophthalmology of the College of Physicians of Philadelphia), Dr. Crampton reported upon a self-contained electric ophthalmoscope. I have tried this small battery in the handle for several months past and have found it unsatisfactory and unreliable on account of the uncertain life of the battery. Some cells, even after infrequent use, last only a few days, and fail us just when we need it most, as at the bedside of our patient. Reporting on this subject at a recent meeting of the New York Ophthalmological Society, I found that most of those who had used it, had, like myself, discarded it, and for the same reason. When some one shall devise a small cell dry battery which lasts longer and is more reliable, it will make such a self-contained electric ophthalmoscope practicable and useful, which, at present, it is not. My ophthalmoscope has been made with this style of battery in the handle, but I have instructed Mr. Meyrowitz, the maker, to advise prospective purchasers not to select this form.

In replying to the criticism in reference to the annoying reflections, Dr. Crampton spoke of the *slotted mirror* and (in a footnote) of the sliding sleeve by which the distance from the filament to the mirror can be varied at will and thus a graduated light be obtained. I am much surprised that Dr. Crampton did not state (was he not aware of the fact?) that both of these improvements, viz., the slotted mirror and the sliding sleeve, were devised by me six or more years ago, and are the distinguishing features of my form of electric ophthalmoscope (itself a modification of Dr. Dennett's), which was presented to the American Ophthalmological Society, at its meeting in 1906, and published in its Transactions for that year (vide Trans. Am. Oph. Soc'y, Vol. XI, p. 225). Of course, the instrument, as made today, has many great improvements, as compared with the model of six years ago. Before presenting this form of ophthalmoscope, five years ago, I had experimented for two or three years with every possible form of mirror, but never succeeded in entirely getting rid of the annoying reflections until I devised the U-shaped or slotted mirror. That it does eliminate the reflexes, is attested by the experience of myself and

many colleagues, in this and other countries during the past five years, and by the further statement from one of the most prominent instrument dealers in New York City, that it is the only form of electric ophthalmoscope handled by them, whose purchasers are never dissatisfied with it.

The control of the illumination at will by the examiner is an invaluable improvement, and by the skillful use of this device, one is able to entirely eliminate the unequally illuminated field which Dr. Crampton considers a necessary accompaniment of the slotted mirror. That is, the area of illumination can be made complete at will. The criticism of the unequally-illuminated field, however, is largely theoretical, for the half of the field is quite large enough for a satisfactory examination, and a slight rotation of the handle brings another area of the fundus into view.

I have never known a confrère to begin using my ophthalmoscope, who did not find that it was such a satisfactory form of instrument, that he finally used it exclusively. Within a month I have received a letter from a colleague in Switzerland, who wrote that my instrument was used in that clinic (one of the largest and best in Switzerland), and gave better satisfaction the longer it was used.

In conclusion, I want to confirm what Dr. Crampton states as to the many advantages of the slotted mirror and the sliding sleeve, but to state further, what Dr. Crampton neglected to do, viz., that both of these devices have been the distinguishing features of my ophthalmoscope for six years past. I remain,

Yours truly,

WILBUR B. MARPLE.

Dr. George E. de Schweinitz, of Philadelphia, has denied the rumor that he contemplated resigning the chair of ophthalmology of the Medical School of the University of Pennsylvania.

The Council of the British Medical Association has adopted the following resolutions:

"That it is desirable that diagnosis and treatment of diseases of the eye, including the estimation of refractive errors and retinoscopy, should be compulsory subjects in every medical curriculum, and that every student should undergo a practical examination therein."

In Memoriam

Dr. William E. Hibbard, a well known oculist of Pasadena, Cal., recently met his death in his home in that city through the accidental burning of his night clothing.

Frank Hamilton Oswald, house surgeon at the Cheltenham (Eng.) Eye, Ear and Throat Hospital, died recently from the effects of hemorrhage following the severing of a vein in his leg, apparently self-inflicted.

Dr. Albert R. Baker for many years prominent in ophthalmological circles and located in Cleveland, Ohio, died April 5th, after an illness of a year, aged 53 years. Dr. Baker was professor of ophthalmology in the College of Physicians and Surgeons of Cleveland, and formerly had charge of the eye department of the medical inspection of school children.

Dr. Chas. Oliver, of Philadelphia, an American ophthalmologist, died April 8th from uremia.

Dr. Oliver has been surgeon to Mills Eye Hospital, Philadelphia, for many years and was a member of many scientific societies. He was the author of the Correlation Theory of Color Perception; Ophthalmic Methods of Recognition of Nerve Diseases; Ophthalmic Therapeutics; Injuries of the Eye and co-editor of the celebrated Noyes and Oliver System of Diseases of the Eye.

Dr. Leartus Connor, of Detroit, Mich., an ophthalmologist of national repute, died suddenly, April 16th, from cerebral hemorrhage, aged 68.

Dr. Connor was tendered a dinner, February 24th, by his confreres in commemoration of the fortieth anniversary of his practice in Detroit. In his earlier years he was a lecturer on chemistry, then professor of physiology and clinical medicine, then professor of didactic and clinical ophthalmology and otology at the Detroit Medical College. He was ophthalmic and aural surgeon to Harper Hospital and Children's Hospital, and consulting ophthalmologist to the Woman's Hospital. Dr. Connor was an ex-president of the American Academy of Medicine, American Medical Editor's Association, Michigan State Medical Society and Detroit Academy of Medicine.

Dr. Henry Gradle, one of the most widely known ophthalmologists of Chicago, died April 4th, at Santa Barbara, Cal., where he was spending the winter. He had been a sufferer for some years from a carcinoma of the bladder which finally caused his death.

Dr. Gradle, who was 55 years of age, was born in Frankfort-on-the-Main, Germany, and received his degree from the Chicago Medical College in 1874. Since that time he has been in the active practice of his specialty in Chicago. He held the chair of ophthalmology and otology in the medical department of Northwestern University until his health failed, and was also attending eye and ear surgeon to Wesley Hospital and consulting surgeon to Mercy Hospital. He was a member of the American Medical Association, Heidelberger Ophthalmologische Gesellschaft, Chicago Laryngological Society and the Chicago Ophthalmological Society and held important offices in the Chicago societies, being an ex-president of the Chicago Ophthalmological Society. In addition to numerous papers he wrote a "Text-book on Diseases of the Nose, Pharynx and Ear."

Notes and News

Personals and items of interest should be sent to Dr. Frank Brawley, 7 West Madison street, Chicago.

Dr. F. Phinizy Calhoun has been made vice-president of the Medical Board of the Grady Hospital, Atlanta.

Gerald George Hodgson, of the staff of the Royal Eye Hospital, Southwark, London, died February 3rd, aged 50.

Dr. L. Webster Fox, of Philadelphia, has been ill, but is reported to be convalescent.

Dr. S. Lewis Zeigler was recently elected vice-president of the Philadelphia Medical Club.

Dr. Benjamin H. Grove, of Buffalo, N. Y., has resigned from the staff of the Emergency Hospital where he has held the appointment as ophthalmologist since its inception ten years ago.

Lieutenant Col. Henry Smith has been awarded a Kasr-I-Hind medal by the India Government.

Dr. J. W. Price, of Memphis, Tenn., has been elected vice-president of the Memphis and Shelby County Medical Society.

Dr. Floyd Preston Sheldon, of New York City, on the staff of the Home for the Friendless and the Webb Home, died February 18th, aged 53.

Dr. Covington, of Baltimore, Md., has recently resigned from the staff of the Presbyterian Eye, Ear, Nose and Throat Hospital in that city.

Dr. Horace A. Peabody, an ophthalmologist of Webster, S. D., formerly president of the South Dakota State Board of Health, died in Florida March 6th, aged 55.

Dr. Pietro Baiardi has been appointed to the chair of ophthalmology in the University of Geneva.

Dr. Frank R. Spencer, of Boulder, Col., is in Europe where he intends to take up a course of post-graduate study.

Dr. Emrys Jones, surgeon to the Manchester, England, Royal Eye Hospital, was recently elected president of the Manchester Medical Society.

Dr. Reinhard Rembe, of Chicago, has been appointed to the professor of ophthalmology, otology, rhinology, and laryngology in the new government hospital being erected at Manila, P. I.

Upon the evening of March 22nd Dr. Frank Allport, of Chicago, delivered an address on the "Health and Progress of the School Child," in Grand Rapids, Mich. The address was preceded by a banquet at the Peninsular Club. The address was delivered under the auspices of the local Medical Society and was attended by the Board of Education, Board of Aldermen and citizens interested in the subject. The matter has been taken up by the Board of Education and the Board of Health and medical inspection of schools under the auspices of medical inspectors has followed.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippern (E. E. N. T.)	J. R. Hoffman (E. E. N. T.)	A. G. Wippern (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippern (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) *Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Abbreviations:	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.		P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.		N. W. U.: Northwestern University, 2431 Dearborn Street.	

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX

CHICAGO, MAY, 1911

NO. 5, NEW SERIES

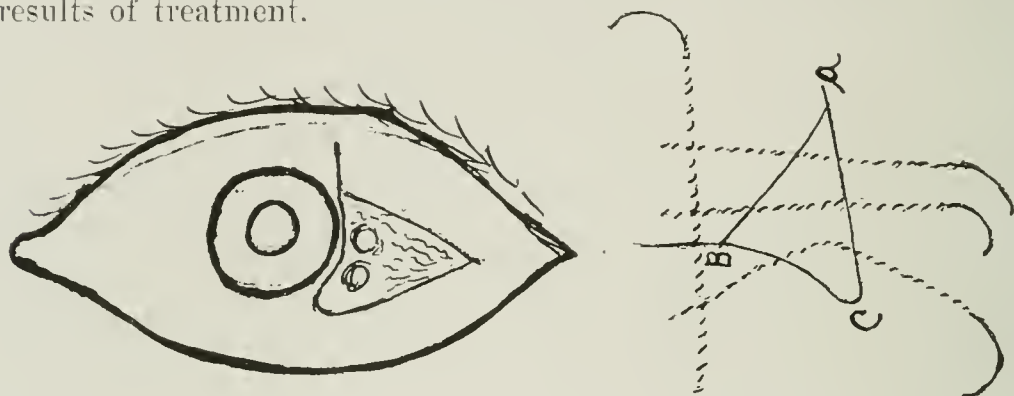
THE TREATMENT OF PHLYCTENULAR CONJUNCTIVITIS.

BY JOHN R. HICKS, M. D.

NEW BRIGHTON, N. Y.

It is the purpose of this paper to describe an efficient mode of treating obstinate cases of phlyctenular conjunctivitis and incidentally certain forms of phlyctenular keratitis. Before mentioning the treatment a brief outline of the pathology of phlyctenular conjunctivitis will not be out of place. It is essentially a localized inflammation of a part of the conjunctiva caused by one or more of the varieties of the common pyogenic organisms, most commonly staphylococcus, pyogenes, aureus or albus: however, in the excision of the phlyctenule I have found in one case a diplococcus similar in appearance to diplococcus pneumoniae. In all cases there is dilatation of the vessels, slowing of the blood current, and a local exudation of leucocytes and other manifestations of inflammation, but often not reaching the stage of ulceration, depending upon the general condition of the patient. If the general condition of the patient is not very bad the phlyctenule may not reach the stage of ulceration and it may be only a vesicle or an infiltration at the limbus corneae which may be accompanied by a diffuse acute conjunctivitis with rather deep conjunctival injection and sometimes resembling a superficial scleritis, which, with regular treatment as prescribed in the text-books, may become absorbed and recovery take place at a variable time of one to six weeks. However, quite frequently a second attack will begin before the first has absolutely terminated, although tonics, diets, and local measures have been prescribed. In these obstinate cases and where the phlyctenular condition returns on the conjunctiva excision of the phlyctenule in the manner described below is, in my opinion, the surest way to a rapid recovery, and in the cases in which I have tried it, I have found it both safe and most efficient. The cases in which I have tried excision have been few, as often phlyctenular con-

junctivitis will, in a few days with the regular prescribed treatment—namely, purgatives, tonics, diet and local medicines in the eye—recover without further interference, but I have tried excision in the manner to be described in three cases of late, with most rapid and gratifying results. As the three cases were quite similar I will recite one in detail, with method of excision of the phlyctenule, and hope at some time in the future to make a further report, with results of treatment.



Case I. Miss A. V., age 26. Has four sisters, mother and father, all living and in good health; patient had no tubercular diathesis or underlying tendency to catarrh, exematous, eruptions, or glandular enlargements, and 'was perfectly healthy in every respect; had been working quite hard, as her mother keeps boarders; slept well and ate heartily; had not recently had any infectious disease, and hygienic surroundings were all that could be desired. She was not a coffee or tea drinker. She said, on waking one morning the light hurt her left eye, and tears ran over her cheeks, but on bathing the eye in borie acid solution the irritation seemed to be relieved; she, however, noticed an area of redness and congestion on the ball of the eye adjoining the outer margin of the cornea. On examination I found two phlyctenulae about 3 mm. apart, very near the margin of the cornea and to the outer side of the conjunctiva of the bulb. This was a typical case of phlyctenular conjunctivitis occurring in a very healthy young woman of 26 years of age, who was soon to be married, and in my experience these cases occurring in grown people without marked evidence of any of the usual causes of the disease, are inclined to be obstinate, as this case proved.

I treated the case with the usual treatment of atropine and eserine, yellow oxide of mercury ointment and various tonics, with rest and regular hours; vision in both eyes normal. As the time

for her marriage was only five weeks off, she wished to get well and get well quickly, but no marked improvement took place after six weeks of treatment. I advised excision of the phlyctenule, and operated in the following way:

After taking the usual aseptic precaution of irrigation of the conjunctival sac with boric acid solution, 4 % cocaine was used for anesthetization without the use of adrenalin as the latter solution seems to bleach the vessels so that it is more difficult to see the margin of the phlyctenule and in the excision it is well to go beyond the margin enough to be out of the zone of infection.

In this case there were three incisions made, as shown in the rough drawing; one at A B along the vessels to the upper margin of the upper phlyctenule to join the incision C B, curving near the margin of the two phlyctenulae, being about midway between them and the corneal margin and extending above the incision A B about 5 mm., being a modification of the Hobby incision for removal of pterygium, in that the upper limb does not extend so high. Now, the triangular area is dissected from above down and excised along the line AC, after which a quite free dissection of the upper conjunctiva is made from A to B; then the edges of the conjunctiva are brought together with silk in the manner shown in the drawing, great care being taken not to have any tension on the sutures, as this really is an infectious process.

After uniting the sutures the eye is again irrigated with boric acid solution, a drop of 1% atropine is instilled and a dressing put on for one day. Each day the wound should be inspected and irrigated with boric acid solution, so that the secretions and excretions, which are septic, should not remain. In three to five days the sutures are removed and in a few days more the disease has disappeared.

It is a question in my mind as to whether or not the counter irritation by means of a suture or two to act as a seton would not stimulate to a rapid recovery, but it would seem better surgery to excise the infected area rather than excite inflammation and leave the infection.

Therefore, I excised the phlyctenule with rapid recovery in these cases.

Of course, I recognize the fact that the success or failure of any surgical procedure cannot be determined by performing a few operations, but that it must be judged by the results of a large

number of operations performed by various operators; however, I believe it is a good step in many cases of phlyctenular conjunctivitis where there is a tendency for the case to become chronic.

Again, to treat it like an abscess—opening the phlyctenule and scraping it out—may be sufficient in most cases, as in a simple abscess in any part of the body, but with excision I think there is more rapid recovery, because one removes the entire seat of infection.

In the multiple forms of phlyctenular conjunctivitis, where the patient has numerous phlyctenules in one or both eyes, the operation is not indicated; first, because of the extensive areas involved; second, because these multiple cases heal and recover rapidly with proper treatment; however, if a multiple case became obstinate I would not hesitate to curette the phlyctenules after opening them, or, if necessary, dissect some or all of them out, as the more one removes, the more infection is eliminated, and the counter-irritation caused by the excision of some, may stimulate those remaining to heal.

LEECH BITE OF THE CORNEA.

EDWARD B. COBURN, M. D.

NEW YORK.

A Russian Jew, aged 21 years, came to my clinic at the Cornell University Medical College Dispensary and gave the following history:

"After bathing in a small river near Odessa about one year ago, I lay down on the bank of the stream and fell asleep. Some time later I was awakened by a sharp pain in the eye and on getting up a leech dropped from my eye. There was much pain, fever, swelling of the lids and face and loss of sight. Treatment lasted two months. Sight has been gradually diminishing."

Status praesens: The patient has only eccentric vision and ability to count fingers at one foot with the right eye. There is a crater-shaped depression in the center of the cornea with a dense central opacity which has a slight resemblance to the characteristic mark left by the bite of a leech. Then there is an area of less capacity surrounded by a circular zone of dense white opacity which marks the outer boundary of the crater and involves almost the entire cornea except the external portion through which the iris could be seen. The pupil was scarcely visible. The tension of the

eye was normal. There was slight circumcorneal injection and photophobia.

While the story of the young man was apparently truthful, still my suspicions were aroused as it did not seem probable that a leech would pass over the succulent face and eyelids and burrow its way between the closed lids of a sleeping man to attack the non-vascular cornea. The explanation seems to be afforded by a description of intentional eye injuries observed by Seidenmann



which I saw later in the *Centralblatt f. Prakt. Augenheilkunde*, October, 1910, page 293. These injuries usually involved the right eye and were either self-inflicted or betrayed the unskilled handiwork of the quack. They were obviously inflicted to avoid military duty. The injuries comprised (1) opacities of the cornea caused by caustics, (2) traumatic cataract caused by the passage of a needle through the cornea, the entrance of which was evidenced by a small corneal opacity; and (3) destruction of the entire globe through application of leeches to the cornea. The leeches sucked out the aqueous causing extensive intraocular hemorrhage with detachment of the retina and choroid, the final result being a shrunken globe. Two or three characteristic scars in the form of a three pointed star are indicative of the agent which produced the injury. Vision is usually poor and the eye soft. The case reported above evidently belongs to this last class.

9 East Fortieth street.

TRACHOMA BODIES FROM NON-TRACHOMATOUS EYES.

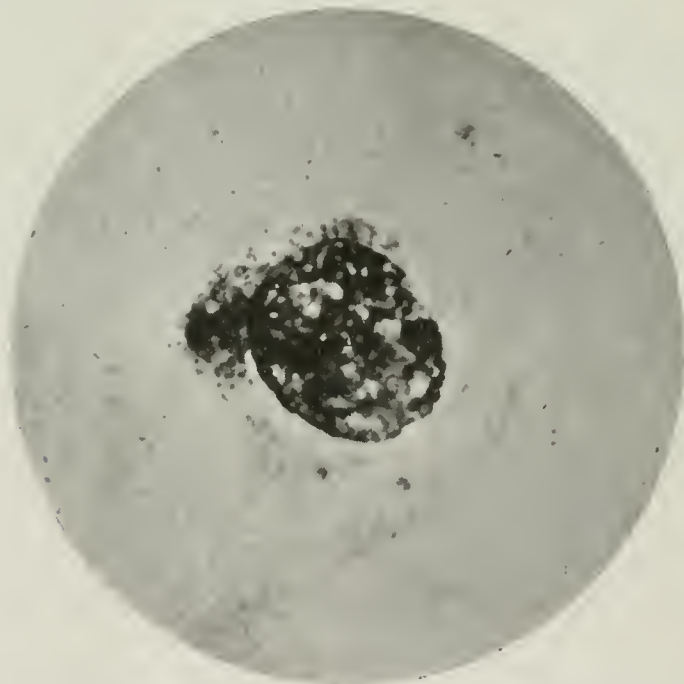
(From the Pathological Laboratory of the Montreal General Hospital.)

BY HANFORD McKEE, B. A., M. D.,

MONTREAL.

(Illustrated.)

In the June number of the OPTHALMIC RECORD, the writer reported the finding of trachoma bodies in the normal conjunctivae of infants. Since that time, a number of observers have reported their findings, most of which tend to disprove the etiological relationship between the trachoma bodies and trachoma. At intervals since my first report, I have continued these examinations, and have demonstrated the trachoma bodies in the following non-trachomatous cases.



1. Catarrhal conjunctivitis (pneumococcal), in an infant of ten days.

2. Two infants less than two weeks old, with normal conjunctivae.

3. Two adults with normal conjunctivae.

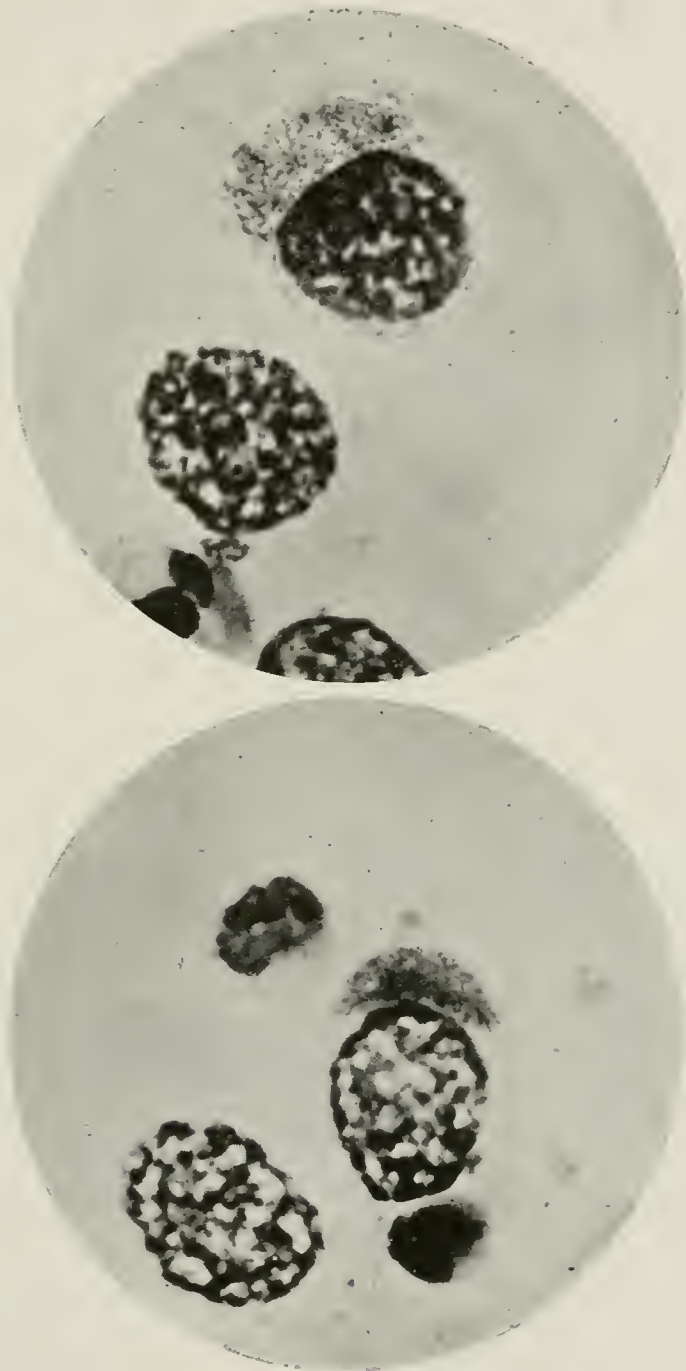
4. Three infants with acute purulent conjunctivitis.

It is the last group which I wish specially to report.

Case 1. A baby two weeks old was brought to me suffering from an acute conjunctivitis of four days duration. A smear preparation was negative and from cultures the staphylococcus albus and the bacillus xerosis were obtained.

Case 2. A baby of two weeks with a "cold in the eyes" for one week. A smear preparation was negative. The bacillus xerosis and staphylococcus albus were obtained by cultures.

Case 3. A baby of one month. The eyes became inflamed two weeks ago. Smear preparations gave the staphylococcus albus



and the bacillus xerosis. These three cases were all treated with twenty per cent argyrol and were all well within a week. Slides were prepared and stained with giemsa 1 in 20 for one hour. In each case and during repeated examinations large numbers of

trachoma bodies were seen. Sometimes as many as five epithelial cells with the bodies about the nuclei were seen in one field. The bodies in position, staining reaction and appearance were identical with the bodies found in trachoma. The slides were examined by a number of experienced laboratory men and compared with slides obtained from trachoma cases. It was impossible to distinguish between them.

Figures 1, 2 and 3, are micro photographs of 1,500 diameter, taken from these three cases. The masses of trachoma bodies about the nuclei of the epithelial cells in each picture need no explanation. These three cases have been under observation since October last and during that period have shown no signs of beginning trachoma, or of any conjunctival inflammation. They demonstrate again that the trachoma bodies are present in non-trachomatous cases, that the trachoma bodies are not the cause of trachoma, and that these bodies are not even pathognomonic of trachoma.

I am indebted to Dr. S. B. Wollbach for the micro photographs.

ELECTRIC INJURIES OF THE EYE.*

ALBERT C. SAUTTER, M. D.,

PHILADELPHIA, PA.

Electric injuries of the eye may be considered under two headings: those induced by exposure to electric light of great intensity, the harmful influence being attributed to the ultra-violet rays and those caused by the passage of an electric current through the body with or without the occurrence of light phenomena.

Electric ophthalmia is perhaps the most usual ocular disturbance encountered after exposure to such light rays, a frequent cause being the bright flash which occurs in short circuiting. This affection is characterized by swelling of the lids and conjunctiva, conjunctival injection, photophobia, blepharospasm and often considerable ocular pain. There may be erosions or ulcerations of the cornea, miosis and retinal congestion. The visual acuity may be undisturbed or it may be quite impaired, especially if corneal disease or a scotoma complicate the condition. The prognosis is generally favorable. In a few cases optic atrophy, neuro-retinitis, retinal thrombosis and central retinitis have been observed.

Analogous symptoms characterize snow blindness or snow

*This paper was read apropos of the presentation of a case of "Lenticular Opacities following Exposure to an Electric Spark," by Dr. Wm. C. Posey before the Wills Hospital Society, February 6, 1911.

ophthalmia, the principal causative factor in both affections probably being the chemically active ultra-violet rays.

While upon the external ocular coats a combined action of heat and light rays is possible, the lens and deeper structures of the eye are principally acted upon by the light rays, most of the heat rays being absorbed by the aqueous humor.

Our knowledge concerning the effect of lights rich in ultra-violet rays upon the lens is derived mainly from experiments on the lower animals. Czerny observed lenticular opacities in the rabbit and toad follow brief application of concentrated sun-light, similar results being obtained by Werneck and Langenbeck. Widmark in 1903 produced a fine opacity in the rabbit lens by exposing the eyes to arc lights of 1,200-4,000 candle power twenty-five centimeters distant for from 2 to 4 hours.

The results of Parsons, Schanz, Stockhausen and Birch-Hirschfeld's experimental studies regarding the absorptive ability of the dioptric media show that the lens has a very strong capacity for absorbing ultra-violet rays.

Since absorption of energy means transformation of energy, it may be possible Parsons contends for this transformed energy to exert a deleterious action on the structure in question; in other words the absorption of certain rays by the lens may be the cause of pathological changes in that structure. With this thought in mind Parsons and Henderson exposed rabbits to light from Schott's uviol mercury vapor lamps which emit rays down to 253 microns, exposure of from 1 to 4 hours being made repeatedly two to three times a week for several weeks. Hess and Birch-Hirschfeld made investigations along the same lines.

After such exposure no opacity was discernible with the ophthalmoscope or macroscopically. Histological examination, however, revealed degenerative changes in the cells of the anterior capsule situated in the pupillary area. Parsons concludes that these changes probably result from the absorption of ultra-violet rays between 300 and 350 microns and partly from absorption of rays of the visible spectrum. Smaller wave lengths than 300 microns are probably absorbed by the cornea.

A rather hasty review of recent literature has failed to disclose the record of any case in which cataract followed a single exposure to an electric spark without electric shock; in fact it is claimed by some that cataract does not occur in electric ophthalmia.

In the case about to be cited, for the clinical notes of which I

am under obligations to Dr. William Campbell Posey, though electric shock could be excluded, the burning of superficial parts is suggestive of rather severe electric traumatism and it is possible that irritant light rays were not solely responsible for the resulting lenticular opacities.

CASE HISTORY.

J. McC., male, age 40, an electric mechanic, came to Dr. Posey's service at the Wills Eye Hospital, January 26, 1911, with the complaint that following the short-circuiting of some electric wires which he was repairing, as a consequence of which his eyes were subjected to a flash of extremely brilliant light, vision was failing in each eye. The accident had occurred a year previously, but the loss of sight was not noted until about two months afterward. The flash had burned the eyelashes and eyebrows and the eyes were somewhat sore for several days. Beyond this transient burn of lids and eyes, however, there had been no sign of outward inflammation. The vision which had begun to fail two months after the accident, had steadily decreased until at the time of examination vision in the right eye equalled 6/35 and that in the left but 6/60. Examination showed both lenses to be the seat of opacities, those of the right eye occupying the anterior cortex for the greater part and those in the left the equator of the lens. The opacities were made up of a series of fine dots and lines and here and there scattered throughout the lenses were numerous fine myeline globules. Both corneae were clear and a careful ophthalmoscopic examination revealed no chorioidial lesion. Both fields showed concentric contraction for form and color. There was a specific history dating twenty years back, but nothing else in the personal or family history which could be considered as a causal factor in the production of a lenticular haze. Examination of the urine was negative.

While the effects of strong light upon the human lens are still more or less open to question, a closer relationship between cause and effect seems to present itself in cases of severe electric shock with or without light phenomena. Thus cataract has been comparatively frequently observed after lightning stroke and while in these cases the light factor cannot be disregarded, electrolytic or metabolic factors probably play an important role, especially when we take into consideration the cases of cataract reported after electrical discharges without associated light phenomena.

Leber describes six cases of cataract directly due to lightning

stroke. In one total cataract developed in two months, in another in two years, in one anterior polar and in another posterior polar cataract formed. Whereas these opacities persisted unaltered, Silex and Knies report cases in which regressive changes occurred.

Lightning cataract has been ascribed to rupture of the capsule (Yvert), to contusion (Nagel and Schleicher), to concentration of salts in the aqueous (Peters), to irido-cyclitis (Vossius), to ciliary spasm (Knies), to ultra-violet rays (Widmark and Silfvast), and by some to thermic influences.

After subjecting cats and rabbits' eyes to sparks from a Leyden jar, Hess found necrosis of the capsular epithelium with opacities of the lens. He attributes lightning cataract therefore primarily to a necrosis of the capsular epithelium. How this is brought about he fails to mention.

Kiribuchi confirmed Hess's findings but attributed the lenticular changes to ciliary hyperemia because the opacities appeared first at the site of greatest injection and it seems reasonable to assume that the serious vascular engorgement which follows lightning stroke may involve the uveal tract, especially the ciliary body, and thus lead to disturbances of nutrition of the lens. —(Parsons).

Optic neuritis, optic atrophy, macular hemorrhages, rupture of the chorioid, detachment of the retina, paralysis of the external muscles and opacities of the cornea have been ascribed to lightning stroke.

Quite a few cases of cataract following accidents from industrial electric discharges have been reported. In most of these there was a history of shock, unconsciousness, superficial burns usually of the face and frequently symptoms of electric ophthalmia, followed in a few weeks or months by unilateral or bilateral cataract formation. Most of these are described as punctate opacities with the tendency for these to coalesce and eventually involve the entire lens.

Bistis cites a case in which a current of 500 volts resulted in a unilateral punctiform opacity which in four months became total. Terrien, a case in which two months after the passage of 550 volts unilateral opacities of the lens appeared; Dor, a case in which a hemorrhagic iridocyclitis followed by partial cataract occurred in one eye and optic atrophy in the other eye; Ellet, a case with normal vision after the injury, but three months later there were numerous spots beneath one anterior capsule and two months later

the lens was entirely opaque. There was slight iritis: extraction of the cataractous lens gave a good visual result.

Roche reports the history of a man who received a shock from an electric current of 75 amperes and 5,000 volts rendering him unconscious for half an hour and burning his left arm and cheek severely. For a month the patient experienced nothing wrong with his sight, but then vision in his left eye became misty and was lost in three weeks. Soon after vision in the other eye became obscured. The opacities resembled mature, white cataracts. The iris reacted well to light. Extraction of the right lens disclosed a transparent lens, the opacity being confined entirely to the capsule. Through a small hole in the dense white capsule, a corrected vision of one-half normal was obtained.

In Kramer's case, after a short circuit injury, both eyes became affected with retino-chorioiditis.

In addition to cataract and uveal inflammation following industrial electric traumatism there have been noted keratitis, hemorrhages into the anterior chamber, vitreous, retina, chorioid and optic nerve and blindness from lesions in the cortical visual centers. It thus seems that the injurious effect of electricity may manifest itself in any portion of the eye.

Occasionally electric injuries are succeeded by definite, systemic nervous manifestations with eye symptoms characteristic of those affections.

A CASE OF THE STINGER OF A BEE EMBEDDED IN THE UPPER EYELID FOR THREE MONTHS.

BY OTIS ORENDORFF, M. D.

CANON CITY, COLO.

In connection with the interesting case in the February number here is one equally puzzling. In the fall of 1910, E. M., carpenter, age 25 years, came to the office complaining of what he thought to be a piece of sawdust under the upper eyelid which had been painful a few hours with increasing severity. Examination showed nothing but an ordinary conjunctivitis. Rest and soothing applications afforded some relief, but as soon as work was resumed the symptoms returned and every time with greater intensity until at the end of a week there was kerato-iritis and the eye imperiled. The man always insisting that there was something under the lid. To gratify him a last careful examination was made which showed the most minute black speck at about

the center of the tarsal conjunctiva which could not be wiped off. Upon seizing it with forceps it was very resistant and pulled out like a splinter embedded at right angles in the tissues. The microscope showed this to resemble the stinger of some insect and inquiry proved this to be true as the patient had suffered a sting on the upper eyelid from an ordinary honey bee about three months previously and had entirely forgotten about it. This had in time penetrated the entire tarsus and emerged on the under side. Complete recovery in a few days.

**ON THE NECESSITY FOR EXTRA CARE IN THE
PROGNOSIS AND TREATMENT OF
DIABETIC CATARACT.***

H. GIFFORD, M. D.

Omaha, Neb.

We all know, of course, that there is a great difference between the real diabetic cataract and the cataract which incidentally occurs in many old people with diabetes, and yet the distinction is one upon which no text book with which I am acquainted, lays sufficient stress. If we systematically examine the urine of all of our cataract patients, quite a number of unsuspected diabetics will be found; but so far as my knowledge goes, it has never been proved that the proportion is so great as to establish an etiological connection between the diabetes of advanced years and the formation of cataract. Moreover, the results obtained in the operation for cataract in diabetics of advanced years are not much worse than those obtained in non-diabetics. The main difference being due, so far as my own experience goes, not to a faulty healing of the wound, but to the occurrence of hemorrhages into the central portion of the retina. It is entirely a different matter, however, with the cataract which occurs as the result of the severe diabetes of younger people, say under thirty years of age. In patients of this class, who, from my own observation, generally die within two years after the disease manifests itself, cataracts frequently develop with astonishing rapidity, the whole process from perfect transparency of the lens to total opacification sometimes being completed in a week or two. With these cataracts, the chance of a good operative result is, I believe, very much poorer than in other cataract patients. As near as I can remember, I have operated on 7 cataracts of this class, and of these eyes,

*Read at the January meeting of the Elkhorn Valley Medical Society, Norfolk, Neb.

two were lost by suppuration of the cornea, and one by severe irido-cyclitis; a loss of nearly 43%, while with other cataract patients my percentage of losses has not been greater than that of the average operator, or somewhere from 1% to 6%. I do not happen to know of any other figures dealing with results of operations in genuine diabetic cataract, but unless my bad results are altogether exceptional, the great importance of recognizing the cause of these cataracts before giving the prognosis is only too apparent. That this cause can be overlooked, I can testify because I have done it. The error is not altogether inexcusable. These patients sometimes present themselves for treatment of the cataract without knowing that they have diabetes, and unless the oculist is put on his guard by the history, he may assume, as I did in one case, that the cataract is the result of a trauma, so slight as to have been forgotten. And if, as happened in my case, the hospital urine-test is neglected, the oculist may operate without knowing how poor the patient's chances are. Moreover, it is not only the prognosis as to sight that is bad; the operation for diabetic cataract involves a decided risk for the patient's life, as the following case shows. A few years ago I removed, through a corneal incision, a soft cataract from the right eye of a woman of 20 years, who had a high percentage of sugar in her urine. The result was perfect. There was no reaction. Vision in the eye was 20/20, one week after the operation. This woman did not know that anything else beside the cataract was wrong with her, and owing to an infraction of the hospital rules, I did not know it till the day after the operation. She went home with vision 20/20 in each eye, the left eye showing no signs of change in the lens. Three weeks later she reappeared with the lens of the left eye entirely opaque. On account of the 400-mile trip which she had made to see me, together with the excellent result obtained in the first eye, I foolishly allowed myself to be persuaded to operate on the left eye. The operation went perfectly smoothly; almost no lens matter was left in the eye (a trifle more, though, than had been left in the right eye); but without any good cause, except the diabetes, suppuration of the cornea and panophthalmitis developed rapidly, and after several days of severe suffering, it seemed the best to eviscerate the eye, which was done rapidly with a very slight chloroform narcosis. She rallied well from this, but a few days later developed severe dyspnoea and died in diabetic coma with typical symptoms of air-hunger.

The fatal result unquestionably was precipitated by the pain, excitement and depression, plus the chloroform, attendant on the infection of the eye. In other words, by my second operation, I shortened this patient's life by probably a number of months and perhaps by a year or more.

Weeks also has reported a case in which the operation for senile cataract seemed to precipitate diabetic coma, and as a further instance of the effect of excitement in the causation of a turn for the worse, I may mention a young woman with diabetes but in good condition, who came some distance to see me for hyperopia. The fatigue of the journey and the distractions of shopping in a small metropolis brought on diacetic acid poisoning and death within 36 hours after reaching the city.*

I therefore conclude with regard to the diabetic cataract of young people:

1. That it should not be operated on without letting the patient or the relatives understand that even if a good result is obtained the patient will probably not live more than a year or so to enjoy it.

2. That the danger of a bad result is much greater than in ordinary cataract, and that it involves some danger to the patient's life.

3. That if a good result has been obtained in one eye, it is unjustifiable to operate on the other eye.

A CASE OF BILATERAL CHOKED DISC PRODUCED BY A CYST AT THE CEREBELLO-PONTILE ANGLE.

Successfully Operated Upon, With Restoration of Vision.

ALFRED MURRAY, M. D.,

CHICAGO.

The author feels justified in reporting the following case not because of its rarity, for reports of similar cases are not uncommon in recent literature, but for the following reasons, viz.: To further chronicle the brilliant results which it is possible to obtain through surgical interference in cases otherwise utterly hopeless; to demonstrate the importance and necessity of making ophthalmoscopic examinations in cases of impaired vision not benefited by lenses; and to illustrate the value of the information gained by taking fields of vision.

The subject of brain tumors is one of such magnitude that it

*It goes without saying that in cases of this sort, an attempt should be made to improve the operative chances by a moderate diet and an antipyrin treatment for a reasonable time before the operation.

would be absurd to enter into a discussion of it here. The subject of choked disc is also too extensive for superficial consideration. It is sufficient to state, as a generalization, that bilateral choked disc is usually the result of increased intracranial pressure, produced chiefly by tumors or new growths situated within or in the region of the cerebellum.

Horsley (1), (2) contends that the maximum edema of the nerve heads occurs practically always on the side corresponding to the tumor. On the other hand, Leslie Paton (3), apparently disproves this contention by clinical statistics. In the present instance the maximum edema of the nerve heads was found to be on the opposite side; and we have evidence of this greater involvement in the resulting atrophy of the optic nerve, with contraction of the field of vision and a central scotoma, on that side.

Of the three chief symptoms of brain tumor, namely, choked disc, headache, and vomiting, that of vomiting was absent throughout the course, except during the time when K. I. was being administered. The patient had no severe headache until a short time preceding the operation; it was for the most part intermittent in character, and was in the nature of an indefinite pain or discomfort over the left mastoid and occipital regions. Not until the vision began to fail did he consider the condition serious.

The only additional symptom which did attract the attention of the patient, and was of diagnostic significance, was the loss of hearing on the left side. The nature of this deafness was such as to cause an aurist to suspect the presence of tumor even in the absence of eye findings.

Only a very superficial test of hearing was made by the author at the time of the first consultation, since the eye symptoms seemed of chief importance. This examination showed a practically normal membrane in the left ear. Bone and air conduction in this ear were reduced about one-half, and whispered voice could be heard at six inches. The Weber test showed no lateralization.

A rather complete examination, however, was made by Dr. J. Holinger about nine months preceding the patient's first visit to the author, namely, on March 18th, 1909, and disclosed some interesting data. To Dr. Holinger the author is indebted for the following record:

Status: Hearing of left ear impaired for past six months. Past three weeks completely deaf in left ear. Membrane normal.

No noise or dizziness. Caloric test shows no dizziness or nystagmus.

Hearing: R. ? L. (whisper), 2 centimeters.

Rinné: R. normal +, 30". L. Crossed.

Weber-Schwabach: a' and A, only in right ear.

Lower limit: R. 16 vd. L. 16 vd (uncertain).

Therefore completely functionless labyrinth on left side. Diagnosis: Tumor, possibly gumma. Medication: K. I. Result: After few treatments hearing for whisper (left ear) 35 centimeters.

Dr. Holinger states that he was unable then to discover any eye changes. The patient noticed about this time that his vision had begun to get cloudy.

In this very interesting case the patient was doomed not only to total blindness, which was rapidly approaching, but also to certain death; whereas now, more than a year after operation, his vision, with appropriate lenses, is almost normal, and he is able to take active part in public life. He is carrying on his business affairs practically as well as ever before. His chief incapacity lies in not being able to do any heavy lifting or hard physical labor. The impression gained from his general appearance and from conversation with him, is that he is a perfectly healthy man, physically and mentally. There is a moderate hernia cerebri, but the patient does not find it necessary to wear any protection.

General History: C. B. Male. Age 44. Married. Four healthy children. Wife had no miscarriages. Family history negative. No specific history. Wassermann test not made (patient had been taking K. I.). Health always good. Served in Danish navy. Now general merchant. Only history of injury is blow on left occiput by a swinging boom on board ship twenty years ago. Rendered him unconscious, but he worked the next day. During service in navy his left ear was turned toward the gun in firing. Vision always good. Never wore glasses until one year ago.

Consulted the author at the suggestion of Dr. O. W. McMichael, of Chicago, December 17th, 1909, on account of failing vision, which had not been benefited by various lenses prescribed during the year just preceding. The patient states that an oculist in Valparaiso, Ind., informed him, upon examining his eyes during the summer of 1909, that there were no changes in the optic nerves. This examination was made without mydriasis. At the first consultation with the author an ophthalmoscopic exam-

ination showed very plainly the presence of bilateral choked disc—the right more pronounced than the left. The condition was diagnosed as an intracranial one, and, therefore, on the presumption of a possible specific origin, the patient was put on large ascending doses of K. I., and instructed to make mercurial inunctions. This treatment was carried out for about four weeks, during which time the eye condition was apparently uninfluenced, except for what seemed to be a slight reduction in the amount of edema of the nerve heads. The patient bore the treatment badly.

The first field of vision was taken on December 22, 1909, five days after the first consultation, and it, with the subsequent fields, is presented herewith. These show in a very interesting manner the progression of the visual impairment, and the brilliant result of operative interference.

The rather rapid progression evidenced by the development of a large central scotoma in the right field on January 17th, 1910, led the author to call in consultation, Dr. D'Orsay Hecht, who diagnosed the condition as left cerebello-pontile tumor. The following findings, including bilateral choked disc, are those upon which he based his diagnosis:

Status: 1. In fair nutrition; no adenopathy, no temperature; somewhat reduced in weight.

2. Romberg marked, and always falls to the left. Staggering gait to the left marked.

3. Co-ordination in hands and legs tested in recumbent posture good.

4. No adiadocokinesia.

5. No astereognosis.

6. Left nerve deafness.

7. Pupils moderately dilated; mydriatic; regular, equal, normal in reaction to L. and A.

8. Bilateral choked disc, 4 to 5 diopters; in right eye a central scotoma.

9. Left anterior two-thirds of tongue anesthetic; nasal mucosa and trigeminus distribution intact.

10. Reflexes all present and brisk—more so on left. No clonus, no Babinski.

11. No involvement of sixth or seventh cranial nerves.

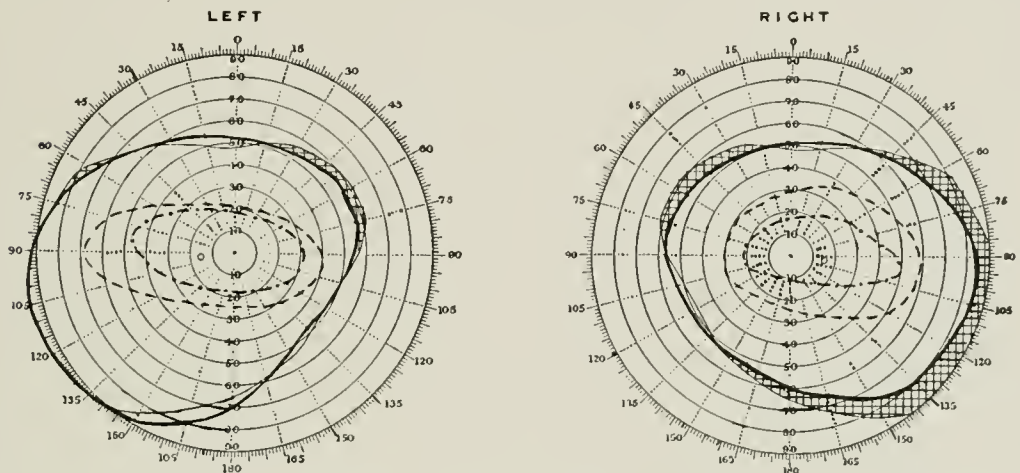
12. Wassermann not made.

13. No radiogram.

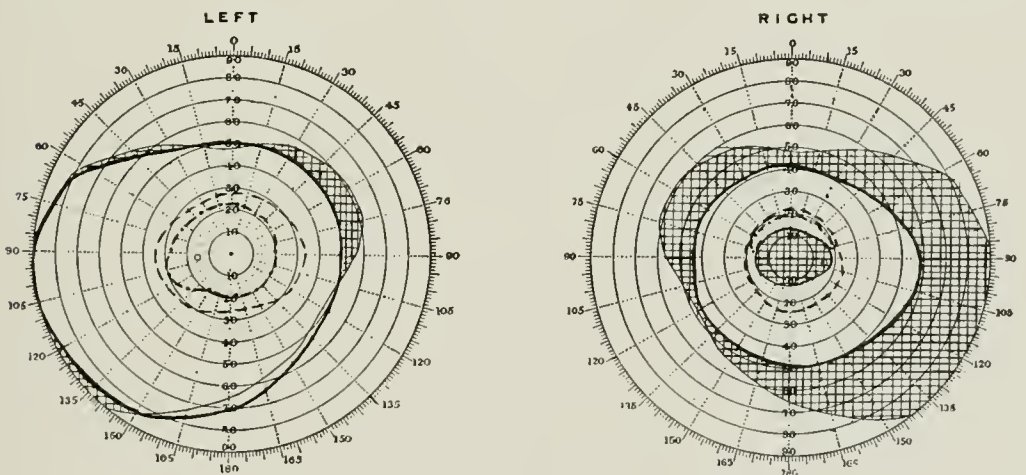
14. No spinal puncture.

Diagnosis: Left cerebello-pontile tumor, with involvement of acoustics.

The rapidity of progression is well shown in fields No. 2 and No. 3, of January 19th and 22d, respectively. At this time the patient expressed his willingness to submit to operation; the case was, therefore, referred to a surgeon, Dr. A. E. Halstead, who, on January 27th, 1910, performed a decompression, removing the greater part of the occipital bone. One week later he performed a



December 22, 1909. Good Light, 5 mm. disc. White— Red— Green—



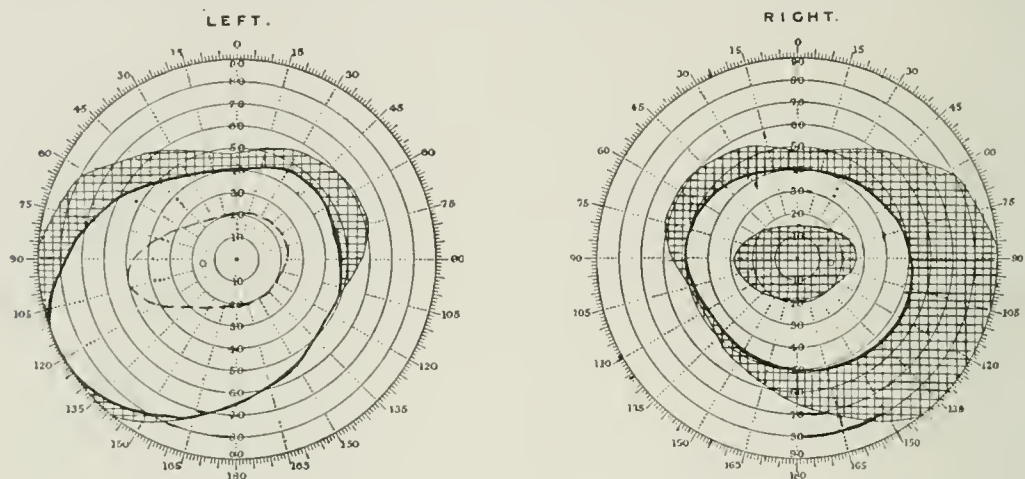
January 19, 1910. Good Light, 5 mm. disc. White— Red— Green—

second operation which disclosed the presence of a cyst embedded in the cerebellar substance, and located, as had been diagnosed, at the cerebello-pontile angle. From this cyst were evacuated several ounces of fluid, but owing to the absence of a well-marked, removable cyst wall, this was the extent of the procedure, except for curettement.

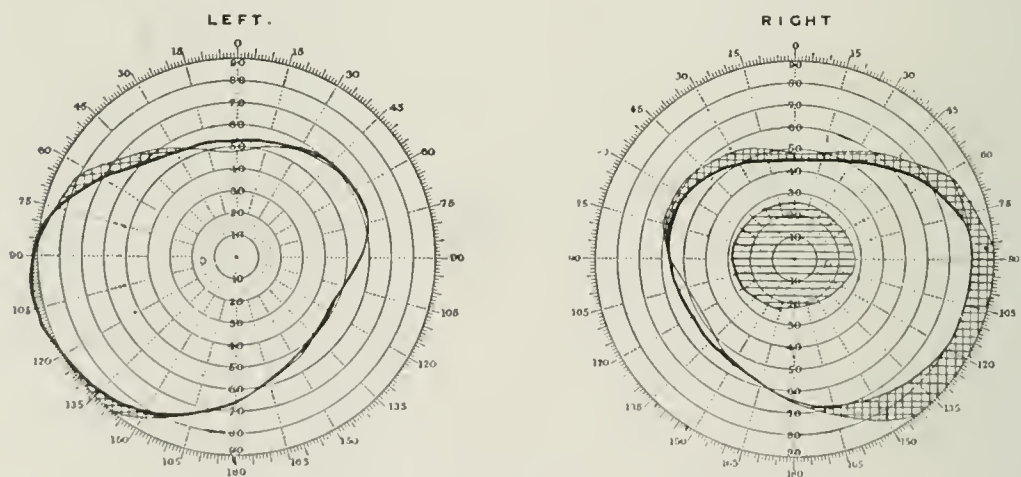
Because of the greatly reduced physical condition of the patient, an ophthalmoscopic examination was not made until four days after the second operation, but it is reasonable to assume

that the edema of the discs was materially reduced following the decompression, since the vision was immediately improved. Although this first ophthalmoscopic examination showed a decided reduction in the amount of edema, the disc margins were not yet discernible, nor did either of them become so until one week after the second operation, and then only the right one.

The first field of vision following operative interference was taken two weeks after the second operation. This was very super-



January 22, 1910. Good Light, 5 mm. disc. White—— Red (left only)——



February 15, 1910. Good Light, 5 mm. disc. White——

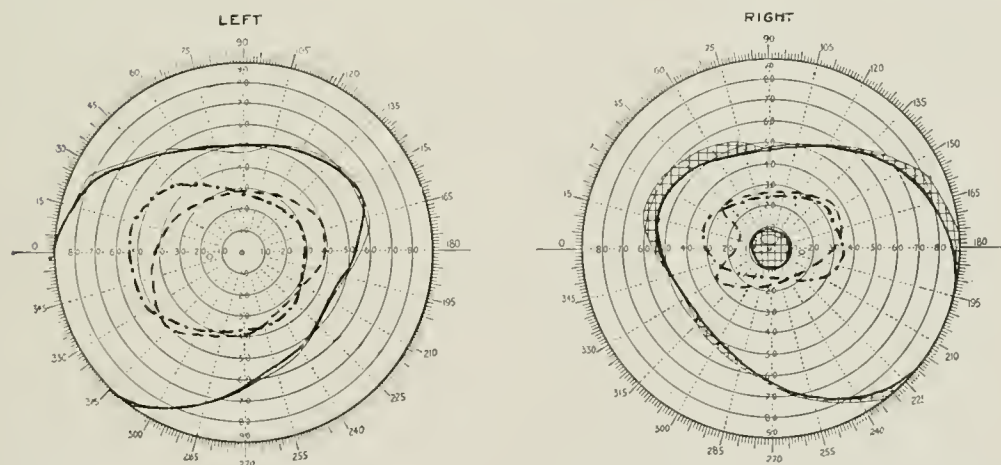
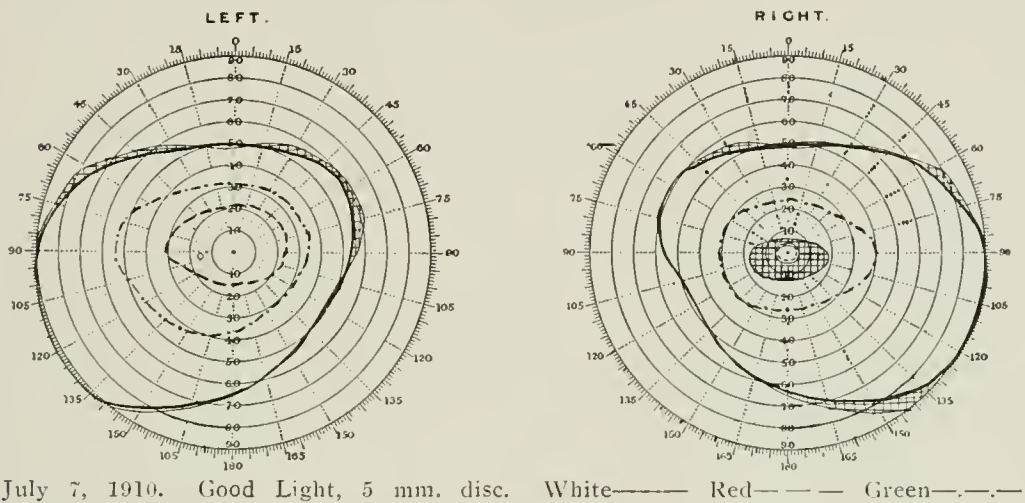
ficially done, owing to the weakened and irritable condition of the patient, but is sufficiently accurate to be depended upon.

The field of vision No. 5, taken July 7th, 1910, or about five months after operation, shows a condition approaching very nearly the normal, except for the pericentral scotoma in the right field, and the inversion of colors in both fields.

The last field of vision, taken on February 21st, 1911, or more than a year after operation, does not differ materially from that

taken seven months before, except in one or two particulars. of this anomaly might of course, have been determined much earlier.

A very interesting feature in the case with reference to the fields of vision is the fact that in those taken before the operation the relationship of the color fields was not disturbed, as is so frequently the case. Unfortunately there was a lapse of five months between the first and second field taken after the operation, but in the second one, No. 5, a very decided inversion of the color fields



was present. Had a field been taken in the interim, the presence of this anomaly might, of course, been determined much earlier. This also applied to field No. 6, taken over a year after the operation, where interlacing of the color fields is shown. This certainly cannot be due to a return of the intracranial pressure for the nerve heads show no edema, and the patient has no symptoms indicative of a relapse.

There is an apparent discrepancy in the uncorrected central vision for which the author finds it difficult to account, unless it

be a matter of accommodation. At the first consultation, December 17, 1909, the uncorrected vision was shown to be 20/40 in both eyes; this was not improved by the correction he was wearing, which formerly had been satisfactory. At the last consultation, February 21st, 1911, the uncorrected vision was—V. R. 20/200, V. L. 20/100+, yet with appropriate lenses it became V. R. 20/40—, V. L. 20/20—. In other words, without correcting lenses the patient saw better before the operation than he did after it; while with correcting lenses his vision was better after the operation than it was before it.

The following are the eye findings in detail:

Status. *December 17, 1909.* Conjunctivæ normal. Pupils normal in appearance and reaction. No ocular palsies. Tension normal. No corneal anesthesia. Homonymous diplopia 2 inches with red glass. V. R. 20/40; V. L. 20/40. Vision not improved with present correction. (Wearing R. + 2.50 sph.; L. + 1.75 sph.). Jaeger i, both eyes with + 4.50 sph. Fundus findings (Euphthalmine): Edema of nerve heads—R + 3. D; L. + 1. D. Patient not refracted.

December 22, 1909. Field of vision (No. 1),. Right: slight irregular concentric contraction of white field. Left: Practically normal.

January 3, 1910. Central vision unchanged. Edema of discs about equal in both eyes (+ 4.D).

January 10, 1910. Central vision unchanged, except letters are more indistinct. Edema seems somewhat reduced (has been under K. I. and mercurial inunctions). No scotoma for white or colors in either eye.

January 17, 1910. V. R.: Absolute central scotoma. V. L.: 20/40, but very hazy. (Condition diagnosed by Dr. Hecht as left cerebello-pontile tumor).

January 19, 1910. Field of vision (No. 2). Right: Marked concentric contraction of white and color fields. Absolute central scotoma, including lower half of green field. Left: Slight irregular contraction of white field, principally nasal. Color fields somewhat contracted. No scotomata. Edema of discs about equal in both eyes (+ 4.D).

January 22, 1910. (Patient weak and dizzy.). Field of vision (No. 3) for white and red (left, only), taken superficially and with difficulty. Right: Contraction somewhat more marked than

at last sitting. Central scotoma much larger. Left: Moderate contraction of white field above.

Referred to Dr. A. E. Halstead for surgical interference.

January 27, 1910. Decompression.

February 3, 1910. Second operation. Evacuation of contents of cyst and curettement of walls.

February 7, 1910. Ophthalmoscopic examination (pupils considerably dilated without mydriatic) shows marked reduction in edema of discs, although disc margins are not visible. Numerous points of exudate around region of discs.

February 11, 1910. (Euphthalmine.). Margins of right disc discernable. Disc looks pale. Vessels contracted. Left disc margins not visible—edema about + 1.D.

February 15, 1910. Field of vision (No. 4) for white only. (Patient very weak—propped up in bed.). Right: Concentric contraction slight. Relative central scotoma for white. Red not recognized. Green recognized. Full color fields not taken. Left: Practically normal white field. Colors recognized with central vision but fields not taken.

Patient returned to his home in the country and was inaccessible for examination until July 7, 1910.

July 7, 1910. Patient states that vision is getting gradually worse. V. R. 20/200 (uncertain fixation); V. L. 20/100 +.

Refraction without cycloplegic shows the following:

R. + 2.75 sph. + 0.50 cyl. ax. 105° = 20/30 (uncertain fixation).

L. + 2.50 sph. + 0.50 cyl. ax. 105° = 20/20 +.

Presbyopia: + 1.00 sph. R. J. vi; L. J. i.

One pair of distance and one pair reading glasses. Pupils normal in appearance and reaction. Fundus findings (without mydriatic)—macular regions poorly seen. Right: Disc pale. No edema. Vessels contracted. No other changes visible. Left: Disc somewhat obscured by old exudate. No edema. Otherwise apparently normal.

Field of vision (No. 5). Right: Pericentric absolute scotoma for white and colors. Red field limited to five degrees around fixation point, which is somewhat blurred for white and colors. Left: Fixation point somewhat blurred for white and colors. Inversion of colors (red and green) in both right and left fields. White fields practically normal.

February 21, 1911. Patient has noticed no change in vision

during past seven months. Correction then prescribed continues to be satisfactory. V. R. 20/200; V. L. 20/100. Vision with correction is V. R. 20/40—(uncertain fixation); V. L. 20/20—. Thus there is a slight reduction in acuity of vision as compared to the findings of July 7, 1910. This may be refractive.

Field of vision (No. 6). Right: Slight concentric contraction. Absolute central scotoma (small), except for minute island of relative scotoma above fixation point. Interlacing of color fields. Left: Normal, except for interlacing of color fields.

Fundus findings (without mydriatic). Right: Disc pale, and vessels contracted. Left: Disc indistinct, but apparently no edema. Macular region not seen in either eye.

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- (1) British Medical Journal, 1909, vol. 2, page 877.
 - (2) British Medical Journal, 1910, March 5th, page 533.
 - (3) Brain, 1909, xxxii, page 65.
- Govan Hall, 4557 Evanston Ave., Chicago.
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IN REFERENCE TO THE AETIOLOGY OF TRACHOMA.

J. A. PRATT, M. D.,

AURORA, ILL.

In reference to the aetiology of trachoma as given by Dr. F. B. Eaton, in his excellent paper of October, 1910 (OPHTHALMIC RECORD), a short history of two cases may be of interest.

Mr. I——, age 23, came to America five years ago. Two years later he started working with horses. Soon his eyes began to trouble him. He worked with the horses for about eight months, when his eyes became too sore to drive. Since then he has had a number of acute attacks. His trachoma is in the second stage. There was no previous history of eye trouble.

Mr. II——, age 78. In 1871 he retired from his farm near Jacksonville, Ill. (Illinois trachoma center), and started keeping stallions. He followed this occupation for eleven years. Up to this time he had never had eye trouble, or been in contact with people having sore eyes. During this time, he could not say definitely, but I infer early in the eleven years, he became afflicted with trachoma. He has treated with a great many physicians since then and is now in the cicatricial stage.

Reports of Societies.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 18, 1911, with Dr. F. R. Spencer, in Boulder.
Dr. Melville Black, Presiding.

Syphilitic Hyalitis.

A woman of 24, with dust-like opacities of the right vitreous, was shown by Dr. Spencer, who desired an expression of opinion as to whether or not "606" was contraindicated. Syphilis had been acquired two years before; and failing vision had been noticed for the past six months in the right eye. While Jaeger 2 was the finest print readable with this eye, yet distant vision was 15/15 with correction. Under Hg. and K. I. the patient was gaining weight.

Discussion.—Dr. Neeper thought there was no contraindication to "606."

Dr. Coover would continue the mixed treatment while improvement continued, but would use "606" if progredd was not satisfactory.

Dr. Black spoke of the uncertainty of dosage or permanency of the effect of this new remedy.

Dr. Jackson believed its indication was in acute, severe manifestations of syphilis, threatening early disastrous effects. He related two fatal cases that had come to his knowledge. In Dr. Spencer's patient he considered "606" contraindicated by the history of the case.

Congenital Dislocation of Lenses.

Dr. Spencer also presented a woman, aged 31, with dislocation of both lenses upwards and inwards, and history of poor vision since birth. With lenses correcting the aphakia of the visual zone and moderate astigmatism, $V = 15/30 +$ in each eye. With $+ 2$ spherical added, near $V =$ Jaeger No. 1. Diplopia was noticed only when the glasses were not worn.

Atrophic Changes in Fundus.

A woman of sixty, with history of gradual failure of sight for fifteen years, now rapidly failing, was shown by Dr. Spencer. R. V. = 2/200, L. V. = 15/50; not improved by lenses. The media were clear. Both disks were very pale, with narrowed vessels. On the outer side of the right disk there was a large atrophic crescent, and diffuse whitish spots of atrophy were scattered over the temporal half of the retina. Dr. G. H. Cattermole, the family

physician, stated that the kidneys were normal, the blood pressure 132, and that the vascular changes were such as were normal to the patient's age. The patient suffered from dyspepsia. The treatment consisted of a well regulated life, strychnia, gr. 1/30 t. i. d., potassium iodid, gr. 5 to 10 t. i. d.

Obstruction of Central Artery.

Dr. Spencer presented a woman, aged 69 years, with history of sudden loss of vision in the left eye on January 5, 1911, during convalescence from influenza. Albuminuria had existed for 25 years. R. V. = 15/15 with correction, L. V. = doubtful light perception. There was left divergent squint of about 10°. The left disk was atrophic, and the retina showed degenerative changes, especially in the macular region.

Discussion.—Dr. Bane considered that the fundus changes were old, atrophic and senile.

Dr. Neeper thought that obstruction of the central artery of the retina had occurred on January 5th.

Dr. Jackson noted contraction and irregularity of the arteries, some being opaque, others white, and diagnosed vascular disease, with obstruction on the 5th of January.

Dr. Black related the case of a boy of twelve years who had suddenly become blind six days before from obstruction of the central artery. When seen on the second day the retinal edema was marked. Four days later it had disappeared and the eye was blind.

Posterior Polar Cataract.

A woman of twenty-five, who had been under Dr. Spencer's observation for three years, was shown because of posterior polar cataracts of recent development. Up to a year before the media were clear, and normal vision had been given by glasses for the previous 5½ years. Now the best obtainable vision with lenses was 15/20, and the patient was unable to do stenographic work, as formerly. Dr. Cattermole had found anemia and debility. He regulated the diet, promoted elimination, and gave K. I. 5 to 10 grains t. i. d. Dionin had been used in one per cent solution daily for four months. Dr. Spencer thought the opacities were now thinner.

Discussion.—Dr. Neeper suggested stronger solution of dionin.

Dr. Libby would add very free water drinking to the treatment outlined.

Dr. Black stated that thiocyanate of soda had been reported as beneficial in some of these cases, by changing the metabolism.

Optic Atrophy.

Dr. Spencer presented a man, aged sixty, with history of gonorrhoea, but not of syphilis, and of rheumatism. Sight had suddenly failed in both eyes five months before. The best obtainable vision was 15/70 in each eye, with correction, and Jaeger No. 9. Both optic disks showed well progressed optic atrophy. High frequency current had been the only treatment, having been used twice a week for six weeks.

Discussion.—Dr. Black would try the intermittent X-ray, and related a specific case that was much helped thereby.

Dr. Neeper said there would be help from the intermittent X-ray if the casual factor were removed and the nerve elements were able to respond.

Retinitis Pigmentosa.

A woman of thirty-two, with history of night blindness through life, was shown by Dr. Spencer. The corrected vision was 15/10 partly, each eye. No consanguinity could be traced. The general health was poor, but syphilis had not been proved, though suspected. Pigment was scattered over the fundus in the shape of islands rather than the "bone corpuscle" pigmentation usually observed in this disease. The fields were contracted. Dr. Cattermole stated that this patient had been married fifteen years, had a child twelve years old who showed no syphilitic taint, and no miscarriages had occurred. The woman was anemic, had headaches and chest pains. Her husband suffered from headaches, chest and leg pains, which were relieved by deep injections of mercury.

Discussion.—Dr. Bane said that the absence of retinal epithelium and the form of the pigmentation were atypical of retinitis pigmentosa.

Dr. Black believed that crossed heredity was usually the underlying factor in these cases.

Dr. Neeper advocated carefully taken fields.

Transient Lens Opacity.

Dr. Black reported the penetration of the cornea and capsule by a tack, in a man about fifty years old. An anterior diffuse opacity of the lens resulted. A bad prognosis was given. Dionin in 5 per cent solution was instilled daily for ten day periods, alternated with ten day rest periods, for two months; with resulting vision of 20/30, and only a small opacity in the lower nasal quadrant.

Orbital Cellulitis.

Dr. Bane reported intense binocular cellulitis in a man of 55 years, suffering from advanced Bright's disease. The sloughing skin of the upper lids was incised and the lids sutured together to save the cornea. Salt solution and 20 per cent argyrol were used. The vision of the right eye was saved, but that of the left was lost. Death occurred five months later.

GEORGE F. LIBBY, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MARCH 20, 1911.

DR. H. W. WOODRUFF, PRESIDENT, IN THE CHAIR.

Some Experiences of Trachoma in the Orient.

Dr. Casey A. Wood delivered a highly instructive and entertaining address, illustrated by lantern slides, on this subject. His remarks treated mainly of the sociologic aspects of trachoma with reference to the alleviation and possible eradication of the disease.

A Case of Iritis Treated with Salvarsan.

Dr. Willis O. Nance presented a man of 20 who developed an acute iritis ten days before admission to the Eye and Ear Infirmary, and who gave a specific history and exhibited all the characteristic signs of syphilis. The infection occurred three months ago. On admission, the eye presented all the typical symptoms of a deep iritis. There was a pronounced ciliary injection and the pupil on dilation became decidedly irregular. No constitutional treatment had been employed. The patient was a robust young man free from nephritic or cardiac disease. Under Dr. Nance's direction, Dr. C. E. Smith, house surgeon at the Infirmary, injected 0.6 gm. salvarsan deeply into the gluteal region, employing Wechsleimann's method. The patient was kept in bed three days. There were no untoward symptoms. Twenty-four hours after the injection, the eye was markedly clearer and a mucous patch in the mouth had entirely cleared. There was a diminution in the adenopathy forty-eight hours after injection, the eye appeared normal except for the irregular pupil. A course of hydrargyrum is to be instituted in the case at once. Dr. Nance considered the rapid clearing of the eye, the healing of the mucous patch and the subsidence of the adenopathy as little short of magical.

Dr. Cassius D. Westcott said that so far as he knew only one patient of his had been subjected to treatment with salvarsan. The patient was a man who gave a very indefinite history of syphilitic infection, although a Wassermann was positive. The only ocular

lesion was a paralysis of one external rectus. A diagnosis of cerebral syphilis was made and he was given mercury for many weeks without effect and finally one injection of salvarsan with similar result. The remedy was given without Dr. Westcott's consent. Dr. Westcott is of the opinion that we should be exceedingly cautious in recommending salvarsan, especially without the advice of an expert syphilographer.

Dr. Casey Wood believed that while the use of salvarsan was especially valuable in the more recent lesions of the ocular apparatus, it still remains to be decided (1) whether "606" is of any considerable use in affections of the oculonervous apparatus, and (2) whether in its employment in such cases the danger of optic neuritis and atrophy has been exaggerated or not.

Dr. H. W. Woodruff has had no personal experience with "606," but as there have been cases which terminated fatally following its use, he made the suggestion that unless the case was one which required an immediate effect that it might be better to give smaller doses and not subject the patient to the danger of sudden death.

Dr. Nance, in closing, said that naturally a compound, thirty per cent of which is arsenic must not be used carelessly or with impunity, nor should it be employed to the exclusion of the classical mercury and iodid regimen. The rapid and striking results in the case reported were considered by the speaker as of more than passing interest.

A Case of Parinaud's Conjunctivitis.

Dr. Nance also presented a case of this rare disease. The patient was a girl of 8 years, who presented the typical appearance of Parinaud's disease as described in the latest edition of Fuchs. Six weeks ago, the mother noticed a swelling back and below the right angle of the inferior maxilla. The right eye a few days later became inflamed. The upper lid is swollen and edematous. There are many areas of granulation tissue in and near the fornix. Near the lid margin are two superficial graycoated ulcers, and in the outer half is a triangular area of diffuse ulceration about 7 by 5 mm. On the lower lid are 3 superficial gray-coated ulcers near the margin. On the limbus to the nasal side there is an oval nodule $2\frac{1}{2}$ by $2\frac{1}{2}$ mm. The preauricular gland is larger than a good-sized almond and the parotid gland is enlarged. The child lives in a flat and has not come into contact with any animal. The personal and family histories are negative.

Dr. W. G. Reeder has seen two cases of Parinaud's conjunctivitis. One was in the practice of the late Dr. Hotz, the other was under the care of Dr. F. I. Brown. Both cases were unilateral and occurred in little girls. Recovery resulted in one of the cases which remained under observation, after three months.

Successful Removal of Steel Encapsulated in the Ciliary Body.

Dr. Robert von der Heydt presented a man of 44 whose left eye had been injured by a piece of steel. Several weeks after injury, a skiagram showed a piece of steel to be present. The position was indicated as being on the temporal side of the corneal border, while it was later found to be exactly below, where a scleral response to the magnet was elicited. After an hour's effort to draw steel back into anterior chamber, without result, attempt was made to move it back toward the vitreous. It was impossible to dislodge the steel body, which seemed well encapsulated and just under sclera, three millimeters below corneal border. A small incision was then made, as in cyclodialysis, at a point judged to be posterior edge of steel. While always responding to current, it resisted removal and it was necessary to enter between it and sclera with a spatula, as used by Heine in cyclodialysis. After a total of two and a quarter hours' effort, its removal was finally accomplished through the small incision. In its exit it drew down the root of iris toward wound. The wound was cauterized, conjunctiva sutured and eserine instilled. Vision of 20/40 was obtained notwithstanding there was a corneal nebula and excentrically drawn pupil.

Dr. Wood said that it is well in cases where large and medium-sized pieces of steel have been removed from the neighborhood of the ciliary body to defer a definite prognosis until a year after the removal of the foreign body. It nearly always happens that septic material is carried into the interior of the eye which even after months may be responsible for a more or less distinctive uveitis.

Dr. Westcott congratulated Dr. von der Heydt upon the brilliant result which he obtained in this case. It illustrates the undesirability of depending upon the patient's statement that there can be no foreign body in the eye after the accident. It is always best to have a radiogram taken at once in all cases where a foreign body may be present in order that it may be removed at once if one is found. The longer we wait, the greater the difficulty and danger of the operation. He believed it is always wise to select the

scleral route for the removal of a large foreign body behind a lens that has not been injured.

An Unusual Case of Superficial Keratitis.

Dr. Major H. Worthington presented a man, aged 52, laborer, whom he first saw at the Eye and Ear Infirmary on the service of Dr. Willis O. Nance, in November, 1910. He had a superficial keratitis, and the usual subjective symptoms, the ulceration stained but lightly with fluorescein, and had the appearance of flakes of mucous attached to the central and upper parts of cornea, as though a brush had been drawn across the cornea from above downward, leaving a ragged surface. He was put on the routine treatment for corneal ulcer, i. e., atropin, heat, argyrol and salicylates internally. In the course of week or ten days' treatment, the cornea became as clear as before and all symptoms subsided. The first week in February, he suffered another attack of this condition in the same eye, which being more severe, he was put in the hospital for treatment and observation. The same picture presented as before, except that the ulceration stained more than previously. In five days the eye was much improved, redness gone, cornea clear except for a slight macula remaining. He was discharged from the hospital after one week's treatment much improved. Later he came to the clinic with the third attack of this condition in the same eye, with appearance of the eye the same as before. At present the cornea is clear and the symptoms have subsided; there is nothing to be seen but two punctate scars on the cornea. Dr. Herbert Walker reports from the laboratory that the smear made shows xerosis bacillus; the culture has not yet been reported on. Fuchs describes a form of keratitis, in which the epithelial layer alone is affected; fine filaments are formed which adhere at one end to the cornea and the other end, swollen and club-shaped, hangs down.

Detachment of Choriodea Following Cataract Extraction.

Dr. E. V. L. Brown exhibited a man whose lens had been removed within the capsule (by accident) with the loss of considerable fluid vitreous thirteen days ago. The wound closed promptly and the anterior chamber was of nearly normal depth the day after the operation. Fresh blood in the pupil area obscured a view for over a week, since which time the chamber has gradually decreased in depth until it is now about one-half that of the other eye. One finds the wound closed and the tension below normal. Focal light shows 4 smooth sail-like bulgings of the retina and choriodea towards the nasal center of the cavum oculi. The temporal and

nasal detachments almost touch each other and leave only a vertical slit between them—above and below another knuckle of the centrally bulged tunic is seen. The areas of detachment correspond to the portions of the chorioidia between the 4 vena vorticosae. The anterior third of the detached areas is brown and looks like the surface of a hazel-nut from which the shell has been removed. The back two-thirds is covered over by a thin whitish filmy membrane corresponding to the position of the retina and through which the darker reflex of the chorioidea shimmers. The ora serrata is very clearly seen. A red reflex is to be had above only and perception and projection of light, which were normal before the operation, are now only present below. Vision before the operation was 5/200.

Dr. Westcott said it had been his practice to disturb the eye as little as possible during the first two days, and he has never thoroughly examined an eye with the ophthalmoscope during the first week after cataract extraction. In at least two instances which he was able to recall, he had seen the anterior chamber behave as Dr. Brown described when the wound seemed perfectly closed, and it is possible that the choroid was detached in these cases, but he refrained from sufficient examination to disclose the fact.

If, as Dr. Brown tells us, the choroid may reattach spontaneously in a few days, it is quite possible that he may have had other cases.

Dr. W. A. Fisher does not see such cases because he always makes a preliminary iridectomy and does not see any reason for making any examination of the eye the next day after the operation. He does not see where the patient would be benefited by an examination of the eye the next morning after the operation, but a great deal of damage could be produced by simply opening the eyes at that time. If a simple operation is performed, or an iridectomy is made at the time of the operation, there is some excuse for looking at the eye the next morning after the operation, but only to see if there is a prolapse of the iris. If a preliminary iridectomy is made with a cataract operation four weeks later, he sees no excuse for looking at the eye for several days.

A Case of Pulsating Exophthalmus.

Dr. C. P. Schenck presented a patient from the service of Dr. W. H. Wilder at the Eye and Ear Infirmary. He had been struck on the back of the head about ten months ago causing a depression of the bone. This had been raised and silver plate intro-

duced at the site of the injury in the left parieto-occital region. About three months later, patient was again struck on the back of the head, rendering him unconscious. After an interval of ten weeks, the right eye began to protude, followed in three weeks by pain in the eye and a watery discharge. Patient entered Infirmary four months ago. The right eye protruded more than one-half its diameter from the orbit, was immobile, divergent, pupil dilated and fixed, conjunctival and ciliary injection, marked chemosis, inability to open lids, tension slightly plus; complains of pain in right side of head. Vision 20/40. Hearing normal; no facial palsy. Complains of noises continuously in right side of head. A high-pitched bruit can be distinctly heard all over patient's head synchronous with heart beat. Fundus normal except for marked distension of retina vessels. Bruit and pain disappears by compression of right common carotid artery upon transverse process of sixth cervical vertebra.

One month after admission, the common carotid artery was ligated. The bruit was not present at completion of operation. Ten days later, the exophthalmus was reduced to one-fourth the diameter of the globe and there was a slight recovery from the 3rd nerve paralysis. There was no bruit. Three weeks after ligation, the iris reacted to accommodation, but not to light. Six weeks later, patient complained of hearing hissing noises in head, but these are not perceptible to the ear of the examiner. A month later a bruit on the right side of the head synchronous with the heart beat could readily be heard with the stethoscope. At time of presentation there is still a slight degree of exophthalmus. The power of the muscles supplied by the 3rd nerve is largely restored.

Dr. Dodd: At the same time this man was in the Infirmary, I had a case giving a similar history. My patient was held up and slugged, rendering him unconscious for some time. This was followed the next day by a facial paralysis. He went to the Cook County Hospital which he left in a few days as his condition did not improve. After staying at home about a month, he came to the Infirmary with a panophthalmitis of the left eye, great proptosis, and swelling about the eye. Not being able to get a good history on account of the interpreter, I supposed the injury was to the eyeball, and that the proptosis was due to the infection. I enucleated the eye but was unable to get the swelling of the conjunctiva to subside for a long time as it was pushed out between

the lids. After getting him in fair condition, he went home, but returned in about two weeks with congestion and secretion of the right eye. The secretion subsided under treatment, but the congestion of the eyeball grew worse, and upon examination I found the retinal vessels also very greatly engorged and tortuous. He complained of severe headache, and upon litsening, I could hear a distinct bruit over the most of the head. By sending for a good interpreter, I then learned that the left eye had become proptosed in the same manner and that the infection producing the panophthalmitis was caused by the exposure of the cornea. I had Dr. Halsted operate on him and he made a complete recovery. The Doctor later did an anastomosis of the nerves to cure his facial paralysis.

Dr. C. E. Smith: At the time of ligation of right common carotid artery by Dr. Bevan, the question was asked "Why not ligate the right internal carotid artery *only*, since it is only this artery which is involved?" The reply was that such a procedure would cause too great an anemia of the brain, with danger of necrosis fololwing. The reason for this is that following ligation of the common carotid artery, there is a small amount of blood which enters the internal carotid artery flowing back from the external carotid artery which has an extensive anastomosis with its fellow of the opposite side. Later on, if pulsating exophalmus recurs, due to extensive compensatory circulation being established through the old aneurysmal sac, the internal carotid artery may be ligated with less danger because along with this, compensatory circulation through the internal carotid artery, there will also have been established compensatory circulation between other intracranial arteries. Dr. Wilder expects to have the right internal carotid artery ligated in this case as the next step in the treatment.

MEETING OF THE OPHTHALMIC SECTION OF THE ST. LOUIS MEDICAL SOCIETY,

APRIL 5, 1911.

DR. M. H. POST, PRESIDING.

Dr. C. Loeb presented a patient whom he had seen for the first time ten days ago, when she came to the Eye Clinic at the Alexian Brothers Hospital, giving a history of having been operated on at the age of 14, for congenital cataract, both eyes. The operation

was successful in that the patient was afterwards able to read, with proper glasses.

Nine years ago, during a pregnancy, she awoke one morning to find the left eye totally blind, and one and a half years later the right eye became suddenly blind. Patient states that an operation was performed on her left eye one and a half years ago, the nature of which she does not know. Probably an optical iridectomy. The result was bad, and the globe is now shrunken. At present the right pupil is dilated with atropine, and the lens capsule with a small central opening the size of a pinhead is visible. In the fundus can be seen a white mass. No retinal reflex except in the extreme temporal periphery. The patient says she can distinguish light and there is some slight power of projection.

Dr. Loeb regards the condition as a pseudo-glioma, probably originating as inflammation of the choroid and vitreous body.

Dr. Saxl considers this a case of hyalitis, the vision lost through an extensive hæmorrhage into the hyaloid body, connective tissues forming subsequently. The decrease in tension is the best proof of shrinkage of the hyaloid. In cases of congenital cataract the vitreous is not very firm; and during pregnancy nephritis frequently leads to hæmorrhage, and a severe one must have taken place here.

Dr. Jennings agreed with Dr. Saxl that the condition is probably the result of an extensive hæmorrhage.

Dr. Parker asked if there could probably be anything gained from a diagnostic standpoint by doing an iridectomy, thus getting a larger pupil for fundus examination.

Dr. Loeb believed iridectomy in this case hardly justifiable because of the risk of taking away the slight light perception. The making of a larger pupil by a secondary cataract operation might, however, be feasible. He asked to have an expression of opinion as to whether subconjunctival injections might produce unfavorable results; and in case this mass in the vitreous be not organized, might any benefit from such treatment be expected.

Dr. Post thought the point well taken as to the avoidance of jeopardizing, by operation, the small amount of vision remaining. He did not favor injections in this instance. As to the iodide treatment, he mentioned a case that came to his clinic some years ago with proliferation of connective tissue in the vitreous, and he had prescribed iodide of potassium, without much hope of benefit, but

the patient had appeared at the clinic from time to time, and claimed that his vision was improving. He disappeared for two years and on returning, the doctor was surprised to find the vision comparatively good. Iodide of potassium had been taken continuously.

Dr. F. P. Parker presented a case which had been seen by him at Washington University Eye Clinic the 8th of February, and which he diagnosed Embolism of the Central Artery. Vision at that time was shadow perception at one foot on temporal side. Ophthalmoscopic examination revealed very small arteries, veins dilated, retina œdematous, and a cherry red spot in the fovea. To-day he had found the red spot almost entirely disappeared, and the disk has become yellowish white. Pressure and iodide of potassium had been used.

Dr. Jennings thought it a typical case of Embolism of the Central Retinal Artery. Treatment to be of any value would have to be instituted before 24 to 36 hours. In a recent case of his own, he had made considerable pressure on the eyeball, and suddenly released the tension in order to drive out the plug. Patient was then sent home and given inhalations of amyl nitrite. The circulation was restored by next day and the patient ultimately recovered with very good vision.

Unilateral Retinitis Pigmentosa.

PAPER BY DR. J. ELLIS JENNINGS.

In a typical case of Retinitis Pigmentosa the symptoms are so characteristic that a diagnosis is made without difficulty. First of these is "night blindness," in which the patient sees quite well in the daytime, but very poorly at night. This is accounted for by a marked concentric contraction of the field of vision, which slowly creeps toward the macula region, so that in time the patient, while having fair central vision, is unable to move about alone. When an ophthalmoscopic examination of the fundus is made these subjective symptoms are found to be due to a slowly progressive degeneration of the retina. We find at the periphery of the fundus, characteristic patches of black pigment arranged in the form of bone corpuscles or teased out moss. They are found especially along the course of the blood vessels and in places lie on top of them. In course of time the pigmentation slowly advances toward the center. Associated with the pigment changes are atrophy of the retina and optic nerve and very

marked contraction of the retinal vessels. The disease affects both eyes, is probably congenital, and often inherited. One-third of the cases occur as a result of the consanguinity of the parents. While the above symptoms described the ordinary form of the disease, there are typical cases in which all the symptoms mentioned are present except the patches of pigment.

The case I wish to present is unusual in that it has but two or three typical patches of pigment and is further remarkable in that only one eye is involved.

Miss S. R., aged 35, consulted me December 10, 1908, on account of fatigue after reading or sewing. She appeared to be in perfect physical condition and had always enjoyed good health. The family history was good and her parents are not related. She has three brothers, all seemingly with normal sight. I examined the eyes of her younger brother and found them normal.

Examination of patient:

Vision—Right eye 5/15, with -0.75 sph. = 5/9.

Vision—Left eye 5/5, with $+0.25$ sph. = $+0.25$ cyl. ax 90° = 5/5.

While testing her vision the patient said, "Don't bother with the right eye—the vision has always been poor—in fact the eye is practically blind unless I look directly at an object." I then tested the field of vision with the following result:

Right Eye—Contraction of the visual field in all directions to within 8° of the fixation point.

Left Eye—The field of vision is absolutely normal.

Ophthalmoscopic Examination:

Right Eye—Optic disc pale and waxy looking, arteries and veins of retina very much contracted and scarcely visible at the periphery. The eyeground has a washed out look and the choroidal vessels are clearly seen, no patches or choroiditis. At the extreme periphery I found a few small specks of pigment and on the nasal side, two or three of them covering a retinal vessel.

The fundus of the left eye was carefully examined, the optic nerve and retinal vessels were normal, and search as I would, I found no trace of pigmentary degeneration. In fact the eyeground was perfectly normal.

Discussion.—Dr. Saxl: Cases of retinitis pigmentosa do not seem to be frequent in this country. I have not seen many here, but quite a number on the continent, and am convinced that the

condition has an anemic basis. The retina is not pink but yellow, and has a washed out look. I have never seen any other than the bone corpuscle form. In regions where nourishment is very poor, as in Russia during the time of the long fast, and in poor neighborhoods that are frequently inundated, night blindness occurs. I have seen as many as five cases in six months, but without any retinitis.

I saw in a family in New York a most pronounced case of retinitis where father and mother were perfectly healthy and the living conditions most favorable. This case of Dr. Jennings is the second I find under such favorable conditions. Whether syphilis has any connection with it I do not know—it does not seem so to me.

Dr. Owen: This is quite an uncommon condition, and has always been a most interesting one to me. It is my idea that this process starts from a lesion of the choroid.

Dr. Loeb: In regard to the rarity of retinitis pigmentosa, I have had two cases in about 250 patients at the Alexian Brothers Hospital, since the clinic started.

Dr. Post: One family in which retinitis pigmentosa occurs has been coming to our office for a number of years. They are well-to-do, well nourished people. They show no evidence of malnutrition. I would like to ask Dr. Jennings if he has come across any reports of cases of monocular retinitis pigmentosa.

Dr. Jennings: I have not been able in the researches I made to find any cases at all similar. This young woman comes from a family in comfortable circumstances, so that she could have everything that would nourish her and keep her in good physical condition. No ear trouble or other ailment, and is a fine specimen of womanhood.

J. G. CALHOUN, Section Editor.

SCIENTIFIC WORK OF EYE, EAR, NOSE AND THROAT SECTION OF JACKSON CO. MED. ASSOCIATION.

DR. W. M. REED, PRESIDING.

April 13, 1911. The evening was set aside for the consideration of accessory nasal sinus disease as a causative factor in simple optic atrophy. Three cases of optic atrophy were presented.

Dr. R. J. Curdy presented the cases from standpoint of the ocular conditions. Dr. R. E. Logan presented the nasal and sinus

conditions from the standpoint of the rhinologist. Dr. E. H. Skinner presented radiographic plates showing the relation of the sinuses with the orbit and optic nerve in the dry skull and also showing radiographs of the several cases before the section.

Dr. R. J. Curdy in presenting the cases to the section recited the usual picture of simple optic atrophy. Condition beginning in one eye—the second eye later becoming involved, a gradual lowering of vision and narrowing of the field, loss of color, perception, etc., save in one of the cases, a Cuban, who gave a history of trauma. If it is proven that nasal disease influences the function of the optic nerve, we have gone a long way to clear this obscure condition—optic atrophy. Literature is not abundant covering this point.

Dr. J. E. Logan from the standpoint of rhinologist showed that in each case there existed pressure on the septum in the side of the eye which first showed signs of optic atrophy—either a deflected septum, an hypertrophied turbinate or a nasal fracture. In none of the three cases is there at present active sinusitis or rhinitis. He did not say that these findings proved that the optic atrophy was caused by nasal trouble, but it could scarcely be considered a mere coincidence that in each of these three cases there were marked pressure upon the septum of the middle third of the middle turbinate.

Dr. E. H. Skinner's plates were very interesting indeed. This will surely, in the near future, prove of great benefit in clearing up these obscure cases. The plates showed distinctly in the case of the Cuban that the ethmoid cells were enlarged on the side of the eye having optic atrophy. The osplanum was pressing outward toward the orbit, suggesting a cause of the atrophy in this case.

Discussion:

Dr. J. S. Weaver said he had presented a paper in February on this subject, at which time he found abundance of literature. Report of cases, showing the very intimate relationship of the sinuses and orbital contents.

Dr. J. W. Sherer said that the toxins formed in these cells, when conditions were such as to prohibit drainage and ventilation, may account for some of these eye symptoms, even though direct pressure did not exist on the nerve or when there was no suppurative process going on in the sinus. The absorption of the toxic gas alone taking place, effecting the orbital contents.

Dr. Kimberlin explained that as there are no valves in the or-

bital veins, infection may take place through this means. Venous stasis becoming a causative factor.

Drs. J. H. Thompson, Jas. Kimberlin and S. H. Shutz were appointed to examine one of the cases having nearly total atrophy in both eyes. This committee reporting agreed as to the eye sym. with the essayest but were inclined to the belief that locomotor ataxia existed.

Dr. Thompson reported several cases from his own experiences of extension of sinusitis to the cavernous sinus and meninges, etc.

Dr. Gosney expressed himself as particularly pleased with the presentation of radiographic plates—believes that many obscure conditions would soon be revealed by this method.

Dr. W. H. Schutz expressed himself in doubt of so great an amount of harm reaching the optic nerve and orbital contents from these sinuses.

Dr. Wm. Reed in removing infected ethmoidal cells would remove the orbital wall if necessary, not fearing orbital empyemia. He agrees with essayests in holding that pathological condition of the nasal sinuses may produce changes in the function of the optic nerve.

HUGH MILLER, Sec'y of Section.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Meeting Tuesday, March 7th, 1911.

WM. CAMPBELL POSEY, M. D., Chairman.

Dr. Schwenk presented the case of a woman with frontal sinusitis. The disease had lasted for several years, yet the patient had no certainty as to the diagnoses of it. A resistant mass occupied the upper outer quadrant of the orbit, and the right eye had become displaced forwards and downwards, without, however, restriction of the ocular movements; neither was there diplopia. After the superficial incision was made the fragile bone could not retain the mass of thick mucopurulent material that filled the frontal cells. This was swabbed out and the necrotic areas were curetted. A drainage tube was inserted and brought out through the nostril. Recovery has been rapid and uneventful, and there are no visual disturbances.

Dr. Schwenk presented also a case of corneal staphyloma in a man who had received a wound of the cornea when he was struck in the left eye by a chip of stone eight months ago. The whole

cornea was ectatic and projected through the fissure. As the process has been so rapid, enucleation is to be performed immediately.

Dr. Fisher exhibited a case of congenital ptosis and ophthalmoplgia, in a woman of twenty-five. All of the orbital muscles were paretic except the external recti; there were, however, fine lateral and rotary nystagmic movements. Iridic reactions were present though feeble. The refraction shows a high grade of hyperopia with astigmatism against the rule. Dr. Fisher intends to perform a plastic operation for the relief of the ptosis.

Dr. S. D. Risley related the history of a case of hemorrhagic glaucoma in a woman of eighty-seven, upon whom he had operated successfully for cataract many years before. The fellow eye also was cataractous at that time but nothing was done to it and it had remained entirely comfortable, though useless, until February, 1911, when the patient was seized suddenly with violent and unrelievable pain in it. When Dr. Risley saw her a week after this, the eyeball was stony-hard. There was extensive chemosis; the cornea was steamy; the anterior chamber shallow and the patient moaned with pain. Some relief was afforded when the chemosis was snipped, by the free flow of a blood-tinged fluid. Hot salt stupes were applied, and eserine was frequently instilled. This treatment gave her some relief but violent exacerbations of pain recurred and kept her awake. After ten days all treatment seemed futile; the suffering threatened a fatal ending as the lady was the subject of far advanced arterio-sclerosis and had had for many years high blood pressure, for the relief of which she had continually taken nitro-glycerine. All the palpable arteries gave evidences of these changes. The only sure source of relief seemed to be in an enucleation, but Risley recalled an unfortunate experience with almost similar conditions where he had removed the eye ball, and he shrank from repeating it. In that case the vessels entering the posterior part of the globe were so sclerosed that the hemorrhage could not be controlled until the clot had filled the orbit, from which quantities of blood oozed for many days. This patient recovered, however, and lived for many years.

But, two other procedures less formidable than the excision of the globe, suggested themselves to Dr. Risley: the removal of the anterior segment, and a posterior sclerotomy. He chose the latter, and with a Beer's knife, he punctured the ball well back of the ciliary region. Turning the knife slowly on its axis, the contents of the globe escaped slowly and afforded complete relief from

pain. The lady died ten days later, from cerebral apoplexy, probably. Risley believed the sudden onset of pain to have been caused by an extensive intraocular hemorrhage, which belief was corroborated by the character of the escaped fluid.

Dr. Posey exhibited a man from whom thirty-six hours before, he had removed a subluxated lens. Both lenses had been congenitally luxated downwards, and the upper margins occupied the center of the pupillary areas. This lens was removed by a scoop with but slight loss of vitreous, and the healing had been prompt and uncomplicated. Dr. Posey said that he had removed a number of similarly luxated lenses by means of the scoop, without fixation of the lens with a needle, and he believed that this is the best procedure to adopt, provided a skillful assistant is at hand to manipulate the lids after the manner of Major Smith.

Dr. Ziegler exhibited again the boy with interstitial keratitis to whom he had administered Salvarsan. At the beginning the Wassermann reaction was as high as $+4$, while now it is less than $+1$.

The chairman stated that the case of uveitis which he had exhibited at the last meeting and which had shown such a marked improvement following one dose of Salvarsan, continues to improve, although it had been found necessary to repeat the injection several times. The improvement is especially noteworthy by reason of the desperate condition of both eyeballs when the treatment was inaugurated.

Dr. Zentmayer exhibited a case of virulent and long standing trachoma in a boy of about thirteen, on whom he had performed the operation of resection of the conjunctiva with excision of the tarsus. At first but one eye was operated upon after this method while the other eye was subjected to expression. The result by the combined operation was so favorable and because so little had been accomplished by expression that subsequently the combined operation was performed on this eye also with a most satisfactory result.

Dr. Ziegler in complimenting Dr. Zentmayer on the result in this case said we do not see now-a-days such severe types as uniformly require operation. In his own milder cases he dilates the ducts and performs canthotomy, which relieves the friction on the cornea and provides for greater drainage of the conjunctival sac.

Dr. Chance showed a vigorous man well past middle life, in whose left eye there were seen detachment of the retina with

hemorrhagic areas, stiffened blood vessels and optic atrophy, all, doubtless, due to arteriosclerotic degeneration.

Dr. Posey exhibited a man with an erosion of the cornea in which the corneal opacity had assumed the appearance almost typical of disciform keratitis. The case was reported several years previously at which time the origin of this somewhat rare form of keratitis was dealt upon.

Dr. Cramer exhibited a case of keratitis with dendriform opacities. The disease had been probably herpetic in character, the resulting lesions showing the coalescence of the different ex-foliated areas.

Dr. William Zentmayer exhibited several slides showing the trachoma bodies of Prowaczek. He recounted the history of the discovery of the trachoma bodies and reviewed the studies made by recent observers. According to Herzog the bodies which produce trachoma are a transitional form of the gonococcus and he applied to them the term micro-gonococcus. He was able to observe the transitional changes from gonococci into trachoma bodies in vitro, and in a case of subacute gonorrhea in life also.

Dr. Reese, by invitation, in explaining the slides on exhibition said that they show the kind of bodies as were first pointed out by Prowaczek and Halberstædter while they were studying trachoma in Java several years ago. The bodies are found almost entirely within the protoplasm of epithelial cells sometimes capping, as it were, the nucleus. They are rounded or crescentic and consist of a mass of granules without a nucleus.

Their shape varies, being circular, segmented circular, ovoid, crescentic, or sometimes irregular in outline, especially those with loose disintegrated granules. The compact granules take a deep dark purple stain, the loose granules and the large bodies take a pinkish violet hue when stained with Giesma double blood stains. The stain should be diluted as it is not desirable to overstain the epithelium. The original observers believed the bodies to be protozoa and the cause of trachoma. As Dr. Zentmayer has said the views on this subject have changed so rapidly that it is difficult to know in what category to place these bodies. It is highly improbable that they are microgonococci or any other form of gonococcus, and quite contrary to our knowledge of bacteria today. Much more work must be done before we can give them a higher place than we now give to the various trachoma bacilli and cocci, which have been already advanced from time to time. Protozoan

bodies have been found in the skin of smallpox and scarlet-fever patients without at all being connected with the etiology of these diseases, while the similar bodies found by Negri in rabies are being more surely associated with rabies, for the "Negri Bodies" have been traced from the rabies of street dogs to the hydrophobia of man as found post mortem, on smears from the brain and cord.

When approached concerning the clinical side of these bodies we should say that they are suspicious. The bodies are practically never found in cicatricial cases. The slide on exhibition was smeared by Dr. Zentmayer from an untreated case of trachoma.

The chairman congratulated Dr. Zentmayer upon his admirable review of the status of the trachoma bodies and he cited a recent paper by McKee who summarized his conclusions as follows: 1. The trachoma bodies of Halberstaedter and Prowaczek are constant in acute trachoma. 2. The inclusions are protozoa and the cause of trachoma we do not believe proved, but as yet we are unable to offer any suggestion as to the nature of these inclusions. 3. The trachoma bodies are not specific for trachoma. 4. They occur in other conjunctival inflammations and in the normal conjunctiva. To what extent they are present in non-trachomatous eyes is only now being worked out. 5. The etiology of trachoma is still undiscovered.

Dr. W. C. Posey exhibited an Edridge-Green Color-Perception Lamp. This lantern consists of four discs, three carrying seven colored glasses each, and one carrying seven modifying glasses. Each disc has a clear aperture. The lantern is provided further with an electric lamp with projecting accessories; a diaphragm for diminishing the size of the light projected; handles for moving the discs and an indicator showing the color or modifier in use. On account of the facility by which the discs containing the various colors can be superposed upon one another, any combination of color can be readily obtained, so that the instrument is peculiarly valuable in studying the precise nature of given forms of color blindness. Its adaptation to this use, however, presupposes, on the part of the examiner, a considerable knowledge of the physics of light. For the actual testing of marine and railroad candidates for color blindness, Dr. Posey said that he preferred the Williams' lantern in conjunction with the Holmgren skeins, as that lantern permitted the examiner to exhibit, if he so desired, three lights of different colors, at the same time.

BURTON CHANCE, *Secretary.*

WILLS HOSPITAL OPHTHALMIC SOCIETY.

Meeting of Monday, April 3d, 1911.

DR. S. D. RISLEY, Chairman.

Dr. J. Norman Risley exhibited a case of ruptured choroid in a patient who had been struck in the left eye with a snow ball one month previous to his admission. He complained that his vision was blurred, and that the pupil was larger than that of the other eye. The pupil was about 6 mm. and did not respond to light or accommodation. Concentric with the disk, a disk's width to the temporal side, was a large sickle-shaped rupture of the choroid, extending from the upper margin of the nerve to a point beyond the nasal margin, a disk's width below the nerve. Another rupture, lozenge-shaped and vertical and about 8 mm. in length, lay between the margin of the disk and the upper end of the linear rupture. There were extensive choroidal changes and the nerve had lost some of its capillarity at the temporal margin.

Dr. Harold Goldberg exhibited a transilluminator having special interchangeable tips for the study of the eyeball and the sinuses. The tips are curved and have concave, conical and flat ends. The concave apex permits closer approximation to the surface of the globe and allows deeper application into the culdesac. For exploring the ethmoidal cells the conical tip is used in the nose, while the flat end is used to illuminate the antrum, and for the frontal sinus. The tips can be sterilized easily. The eye attachment can be concealed in the hand and may be adjusted to the eye without alarming the patient.

The chairman said he has used this instrument for several months, for with it one can get a closer contact with the ball than by others, and its uses in the nasal cavities are most satisfactory.

Dr. Posey has found the larger lamps, like the Sach's, so bulky that with them he had not been able to get deep into the sulcus.

Dr. F. N. K. Schwenk reported a case of a "Traumatic Dislocation of the Eye-ball with Sarcoma Involving the Ball and Orbit," in a woman of 40. Five days before admission, while chopping wood she was hit in the left eye by a flying piece. The eye-ball was instantly exposed and the lids could not be brought over the cornea. When seen on March 21st, there was great exophthalmus, the margins of the lids having passed around the posterior part of the ball and acted like a sphincter. Having illness in her family, she put off consulting an oculist until the pain became severe. The eye had been blind for five years or more, but was

never painful nor inconvenient until the accident. The cornea was necrosed and sloughing, and the bulbar conjunctiva was dark and gangrenous. The lids were enormously swollen, the whole orbit being tense and tender. In appearance the case was not unlike that of an orbital cellulitis. The patient was profoundly depressed, her tongue was coated and she had headache. She was admitted to the wards and prepared for enucleation. The operation was done March 23d. The muscles and ball were surrounded by granular tissue which looked like a mass of fatty cells, yet it proved densely hard. The orbit was then found to be filled with the new tissue which was so suspicious that it was deemed wise to clean the entire orbit. The patient is now making a good recovery, yet because the new growth is probably sarcomatous it is likely that there may be a recurrence. Dr. Schwenk stated that he had seen four cases only of dislocation of the eyeball; two in women and one in a man while the other was in a dog which was the only one that could be replaced for the others had to be enucleated.

Dr. Ziegler suggested that Ewing's Salicylic Acid Solution be used in the orbit as a cauterant.

Dr. John Frost showed a man with traumatic aniridia. He had been struck by a piece of wood ten days before admission. The cornea had three linear wounds, none of which involved the ciliary region. The anterior chamber was partly filled with blood. The iris was then intact, the pupil being contracted. In a week the blood was absorbed, but at the site of the lowermost wound a fibrinous exudate had formed connecting with the iris. Two weeks later it was noticed that the iris had become thinner and in a month it was entirely absorbed. The eye has remained quiet, though the vision is only 4/30.

Dr. Posey showed a case of entropion as a sequel to granular conjunctivitis, for the relief of which he had recently done a double Hotz operation. He had been much pleased with the result from this operation in previous cases, but is willing to adopt the suggestion of Dr. Ziegler in another case upon which he will soon operate, where he will try to overcome the deformity by punctures by the galvano-cautery along the anterior surface of the lid, combined with a von Burow incision into the tarsus. Dr. Posey showed another case which demonstrated one of the disadvantages of the insertion of styles for the relief of epiphora. Large granulations have sprung up in the lower canaliculi following the insertion of the lead wires.

Dr. Ziegler said he would apply Ewing's solution here too to aid in the disappearance of the granuloma, as he said that he had found this fluid of great service in causing the absorption of new-formed tissue.

Dr. Posey also showed a case of extensive ulceration of the cornea, which had gone on to panophthalmitis, largely, so he thought, because he had relied solely upon the local applications of sulphate of quinine. The eye had done well previously under cauterization with carbolic acid and the applications of atropine and iodoform in vaseline. The corneal tissues seemed to melt away rapidly after a 1% solution.

The chairman regretted that Dr. Posey had had such a misfortune in the use of the quinine solutions, for he had early been impressed by Dr. Schwenk's results, and had himself used it with signal success.

Dr. Posey also reported a case of monocular optic neuritis following fracture of the orbit in a young man, an iron moulder, who consulted him because of poor vision in his left eye. The loss in vision was ascribed to a blow upon the left side of the face which he had received from a beer bottle two years previously. The eye was apparently unaffected at the time of the injury and vision did not begin to fall until some weeks later. The patient stated that although the skin over his cheek bone had been considerably lacerated by the bottle, the surgeon in attendance had been unable to find any fractures and the failure of sight was attributed to a mild external inflammation which appeared in the eye some days after the accident, in conjunction with considerable swelling and discoloration of the skin about the wounded area. At no time had the sight been greatly impaired, but the patient had been annoyed, as at the time of consultation, by a general appearance of haze. He could not remember that movement of the eye had ever been painful. The right eye had always appeared normal. Ophthalmoscopic examination showed a pronounced swelling of the left disc, with enlarged and somewhat tortuous veins, but without hemorrhage or extravasations. The right fundus was normal, vision equalling 5/5: that of the left 5/15. Both eyes were slightly hypermetropic. The field in the right eye was normal, but that in the left though normal for form, showed a decided concentric limitation for colors. The patient was sent to the Polyclinic Hospital, where an X-ray study by Dr. Leonard showed a fracture through the malar bone including the nasal process and the orbital plate. A rhinological examination by Dr. Gibbs was negative. A

Wassermann reaction was positive. The patient confessed to an attack of gonorrhea five years ago and repeated attacks since, but he had never suffered from rheumatism and had shown no evidence of systemic infection by the gonococcus.

Dr. Zentmayer said that while he had seen a number of cases of atrophy following an injury to the bony orbit, yet as he could not remember seeing any in the early stages of the injury, he wished to know what Dr. Posey's thought was as to the causation of the neuritis.

Dr. Posey replied that he thought the neuritis probably arose secondary to an inflammation of its sheath which had been occasioned by the fracture through the foramen.

Dr. S. D. Risley presented the history of a case of atrophy of the right optic nerve following a blow upon the superior orbital rim. The patient, a man, had been admitted to the hospital in March, 1898. There was then marked swelling of the eye lids with ecchymosis, yet there were no evidences of intraocular injury. The swelling rapidly subsided, but in a few weeks the vision began to fail and soon passed into total blindness. It is interesting to study the fundus after the lapse of thirteen years. The nerve is gray and is wanting in capillarity, but otherwise it presents none of the appearances of atrophy. The central vessels are apparently normal, yet the eye is totally blind. The patient is one of a group of eight cases of blindness from blows upon the orbital rim followed by monocular atrophy which Risley reported seven years ago.

Dr. Chance showed a case of quiescent or "cured" trachoma. The patient, an American housewife, had been diseased for twenty years, and when she came under observation at the hospital about eight years ago her condition was the most marked that we had seen in one of such scrupulous habits as she practiced. For the past eighteen months there has been no treatment. The upper lids are now quite smooth though streaked with fine cicatricial strands, while the lower sacs are not greatly contracted. The ciliary borders are slightly distorted and there is no discharge. In the active state six or eight years ago the corneas were so eroded that the deeper layers became more or less ectatic through the erosions. Now the corneas are smooth and have regained so great a transparency that the patient has useful vision. Almost every substance recommended was used in the treatment, but in the later years the glycerole of tannin or of boric acid gave the greatest satisfaction. No surgical procedures were ever practiced.

BURTON CHANCE, Secretary.

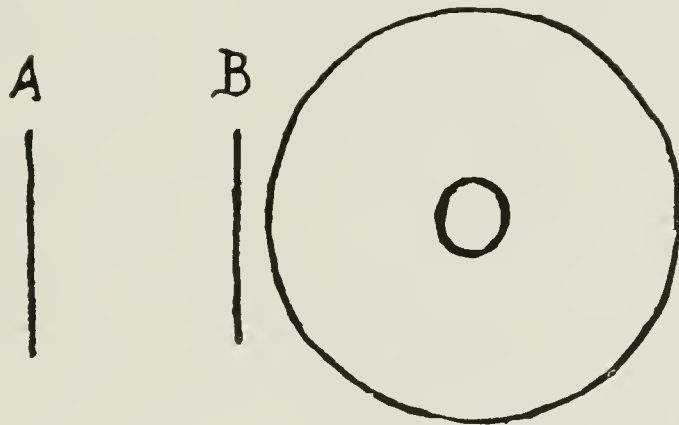
Correspondence

Advancement of an Ocular Muscle.

Memphis, Tenn., April 4, 1911.

Editor OPHTHALMIC RECORD,
Chicago, Ill.

Dear Sir: At the St. Louis meeting of the A. M. A., in discussing Dr. Hulen's paper on advancement, I mentioned the fact that it had been shown that when an ocular muscle was advanced it attached itself not merely by its tip to the point where the tip touched the sclera, but solidly from this point back to the site of its original insertion into the sclera, and that if this was true it would be just as well to unite the end of the muscle, after resection, to the stump of the tendon, as this was easier than scleral anchorage and gave the same result. After the publication of this discussion



I had some correspondence with Dr. David Wells, of Boston, on the subject, and was unfortunately not able to give him my authority for this statement. He published our correspondence, with a letter from Dr. Landolt, of Paris, in the OPHTHALMIC RECORD for December, 1910, and in reading this article it seemed to me that Dr. Wells had misunderstood my statement. Of this I am assured by later correspondence, and I venture to bring the matter up, not only for this reason, but because I have found my authority, and the idea is more abundantly strengthened in my mind by a recent publication from the pen of Dr. Edward Jackson.

The proposition is as follows: If an ocular muscle is attached to the sclera at A, and is loosened from this attachment, brought forward by any means and fixed so that its extremity lies at B, as in an advancement, it is not simply attached by its extremity at B as it formerly was at A, but unites to the sclera solidly from B to

A, back of which point it is free from the globe, as it was originally. Therefore, for all practical purposes its point of attachment to the globe is still A, and there is where it pulls. Except for security, the part of the muscle lying on the sclera between A and B serves no useful purpose. In common with many others, it seems to me better, therefore, to resect the muscle and unite its cut end to A, rather than to advance the tendon and fix it to the ball at B. The principal reason for this belief is that one gets rid of the whole troublesome question of scleral anchorage.

My attention was first called to this question of how an advanced muscle unites to the globe by Froehlich (Arch. Oph. XXXIV, p. 621), who says: "If the end of an ocular muscle is transplanted over its natural insertion towards the cornea, the inner surface of the advanced muscle grows fast to the outer surface of the sclera." He quotes several observations in proof of this, and I have noticed the same thing in a few cases in which I have operated on eyes already subjected to advancement. My own cases are three in number, scattered over nearly fifteen years, and not sufficiently carefully recorded to permit the use of them alone. In connection with other observations their value is greater.

The quotation from Dr. Jackson is as follows (A System of Ophthalmic Operations, Vol. 1, p. 736, edited by Casey A. Wood, The Cleveland Press, 1910):

"It has been assumed that an advancement operation causes the tendon of insertion to form a new attachment to the eyeball at its anterior extremity, and to act upon this attachment as it did upon the original insertion. It is upon this assumption that the beautiful demonstration of the superiority of advancement over tenotomy of Landolt and his followers has been based. But the writer's experience in secondary operations agrees with that of others to indicate that the advanced tendon does not become attached to the eyeball simply by its anterior extremity, but rather that the attachment extends at least as far back as the original insertion of the muscle, and sometimes farther. This has been emphasized by Mueller. Froehlich reports two cases in which this was proven to have occurred. Such re-attachment of the tendons prevents any benefit from the attachment in the way of increasing the contact arc, although it does not necessarily cause such a diminution of the contact arc, as tenotomy."

Very respectfully,

E. C. ELLETT.

Notes and News.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR. FRANK BRAWLEY, 7 WEST MADISON STREET, CHICAGO.

A new ophthalmic hospital has been founded in Bangalore, Mysore, India, by the Maharaja of Mysore, in honor of the Earl of Minto.

Dr. Joseph White, of Richmond, Va., recently presided at the annual meeting of the Tri-State Medical Society of Virginia and the Carolinas.

Dr. Thomas L. Foulds, an ophthalmologist of Alton, Ill., and at one time president of the Alton Medical Society, died in that city March 7th, aged 57.

We understand from a London correspondent that the English courts have decided that an optician who overlooks diseases of the eye is guilty of negligence.

Drs. Charles Lukens and Walter Snyder, of Toledo, Ohio, have been appointed to the staff of Flower Hospital in the Department of eye, ear, nose and throat.

Dr. John W. Kniskern, an Ophthalmologist of Amsterdam, N. Y., and Ophthalmic and Aural Surgeon to the Amsterdam Hospital, died in that city January 31, aged 43.

Peter Stephen, F. R. C. S., Edin., died December 5. He was formerly consulting Ophthalmic Surgeon to the Dundee Eye Institution, but had retired from active work.

Dr. Frank H. Koyle, of Hornellsville, N. Y., who was special examining eye surgeon for the United States Interior Department, died at his home January 17, of pneumonia.

The trustees of Starling, Ohio, Medical College of Columbus, Ohio, have issued a circular letter to the members of the faculty denouncing "fee-splitting" and plainly stating that any faculty member will be dismissed if found guilty of such practice.

An informal association of the ophthalmologists of Scotland who hold public hospital or dispensary appointments has been proposed. There is to be a chairman for each meeting and no by-laws or restrictions, the meetings being held in various towns over the country.

CHOKED DISC AND BRAIN TUMOR.

J. B. Thomas, Santa Cruz, Cal., reports a case of brain tumor with choked disc, the tumor being a large round-celled sarcoma, as shown at necropsy. Blindness came on suddenly though it had been preceded years before by an attack of unconsciousness and later transient attacks of numbness in the right arm and side. After the blindness, which was confined to the right eye at first, there was severe headache and vertigo and marked choked disc of the left eye, progressive in character, with at last complete loss of sight. The patient denied any specific infection and specific treatment failed. The case he thinks is of use as showing the value of optic neuritis as an early symptom of brain tumor, as it developed in the patient at least four months before the appearance of other distinctive tumor symptoms. The following facts, he says, are noteworthy in this case. 1. The tumor was precentral and the accompanying optic neuritis was very severe. Paton concludes that precentral tumors are nearly always associated with a fairly severe neuritis, whereas postcentral tumors are nearly always associated with a moderate neuritis. It is unnecessary to remind the oculist that the severity of the optic neuritis should be judged, not so much by the loss of vision, as by the height of the swelling of the disc, turgescence of the retinal vessels, the extent of hemorrhages and patches of exudate. 2. The eye on the opposite side of the tumor was first affected. 3. The difference in severity of the optic neuritis in the two eyes could not be noted because the process in the right eye had begun the atrophic stage and in the left eye was at the height of the acute stage when the patient first came under observation. Both the second and third signs as noted above are untrustworthy, according to Paton. In about one-half of his cases a difference in the severity of the neuritis in the two eyes was observed, but the more severe neuritis often occurred on the opposite side from the tumor.—*Journal A. M. A.*, May 13.

Obituary

CHARLES STEDMAN BULL.

Dr. Charles Stedman Bull, of New York City, died April 7, aged sixty-six.

Dr. Bull enjoyed an international reputation as an ophthalmologist, and was a member of many special and general societies in which he served in various official positions. Formerly he was associated with the staffs of the Manhattan Eye and Ear Hospital, New York Eye and Ear Infirmary, Presbyterian, St. Luke's and St. Mary's Hospitals. His recent work has been carried on as professor of ophthalmology at Cornell University.

The following appreciation indicates the regard in which he was held by those who were fortunate enough to know him well. It was written by Allen McLane Hamilton, and printed in the New York Evening Post:

Dr. Charles Stedman Bull, who died a few days ago, was the last of that little band of great New York ophthalmologists which included the names of Agnew, Loring, Eisberg, and Noyes, and whose activities began just after the end of the civil war. Dr. Bull, whose name is endeared to the whole profession, and especially to those who undertook with him in the beginning the laborious work of medicine, and who have plodded on shoulder to shoulder ever since, was one of the greatest and most modest of practitioners, whose career has been marked by steadfast devotion to ideals. He was one who scorned chicanery and dishonest methods, and his occasional most intense indignation was manifested at what he conceived to be a degradation of, or slight upon, his calling. He was with these exceptions an amicable and gentle character, loyal to his friends, and ever just to those with whom he disagreed. He was so simple in his professional life, and so observant of the ethics of his profession, as to make the few who did not know him wonder at his success, especially in an age when pure merit does not always count.

His learning was remarkable. Not only was he absolutely abreast of the times in his knowledge of the literature of his specialty, but if he found an unusual wealth of new information in a strange language, he promptly, and without effort, mastered this tongue. It is related of him that in his early days he went from Vienna to Holland to study under Donders and learned Dutch in a few weeks. He was ever systematic, accurate, and precise, and his contributions to medical literature are solid additions to the knowledge of diseases of the eye, and especially of their relation to

co-existent affections of the brain. Until almost the day of his unexpected and sudden death, he kept up his work at the New York Eye and Ear Infirmary, with which he had been connected for forty years, and lectured to his class at the Cornell University Medical School; in fact, his profession was his life.

His relaxation was inadequate, and he certainly did not rest as he should. When among his friends at his clubs and elsewhere he was a charming companion, possessing a keen sense of humor, his laugh being the heartiest of all.

These few parting words are written by one of the oldest and most attached friends, who loved him not only for his great virtues, but for his chivalrous, splendid nature, and in saying this I think I voice the regret of all those who worked by his side from the early seventies until to-day.

But thou and I have shaken hands
Till growing winters lay me low;
My parts are in the fields I know
And thine is undiscovered land.

HERMAN KNAPP.

Herman Knapp is dead, and to those medical men, and especially to those eye and ear surgeons who knew him well, and have for years observed his preëminent ability, this information comes as a shock, although they were not unprepared for the news.

It is perhaps not saying too much to state that Herman Knapp, all things considered, was the greatest living American ophthalmologist, and has done more to place ophthalmology in America, upon its present high plane, than any other one man. He was learned, skilful, energetic, ambitious, untiring, resourceful, and those who have frequently seen him operate will unite in saying that as an ophthalmic operator he was the equal of any surgeon in the world. In cataract operations he was especially skillful, and the accuracy and certainty of his manipulations in this procedure, were the envy of all who witnessed them.

He was born at Dauborn, Prussia, on March 17, 1832, and graduated from the University of Giessen in 1854. He was Professor of Ophthalmology at the University of Heidelberg from 1864 to 1868, and founded the first University Ophthalmic Hospital in that city. He was a student both of von Helmholtz and von Graefe.

He came to America in 1868, to practice in New York City, and shortly after his arrival he founded the New York Ophthalmic

and Aural Institute at No. 46 East Twelfth Street, which was for many years the Mecca of American ophthalmologists and otologists. At this institution many of the most eminent ophthalmic surgeons of this country have been educated. The Institute is still in successful existence, under the care of his son, Arnold. In 1888 he became Professor of Ophthalmology in the New York College of Physicians and Surgeons, and was made Emeritus Professor in 1902.

He founded in 1869 the *Archives of Ophthalmology and Otology*, a publication which has perhaps done as much to elevate these specialties as any other periodical. This magazine was subsequently divided into two publications, the *Archives of Ophthalmology*, and the *Archives of Otology*. The latter has recently ceased to exist.

He was an active member of almost all the great ophthalmological societies of the world, in whose councils his influence was always profound and far-reaching. His writings were of the highest character, and have decidedly shaped the progress of modern ophthalmology.

Dr. Knapp had been in poor health for some years, and died April 30, 1911, of pneumonia at Mamaroneck. He leaves two married daughters, Mrs. S. Kammerer and Mrs. G. H. Cocks, and a son, well known to fame, Dr. Arnold Knapp.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)	J. K. Hoffman (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperf (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (P.&S.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
119 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honore Streets.
Ills. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Penria and Adams Streets.

Poli.: Chicago Polyclinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX

CHICAGO, JUNE, 1911

NO. 6, NEW SERIES

DIRECTIONS FOR MUSCLE EXERCISES.

(With a printed form suitable for home use.)

BY ALEXANDER DUANE, M. D.

NEW YORK.

In prescribing muscle exercises for home use, it is convenient to use a printed form which is given to the patient and which contains full and explicit directions for his guidance. This saves a good deal of verbal explanation, and often serves to prevent mistakes. The form which I have used for a number of years, and which I have found quite satisfactory is as follows:

DIRECTIONS FOR EXERCISES.

APPLIANCES REQUIRED.

Square unmounted prisms of 10° , 16° and 20° .

A round white pasteboard target at least one foot in diameter, with a central black bull's-eye, one-third of an inch in diameter.

A round white pasteboard target six inches in diameter, with a dot in the center not more than $\frac{1}{32}$ of an inch in diameter on one side, and a narrow vertical line,* one inch long, in the middle of the other side.

VARIETIES OF EXERCISES.

Each practice consists of the following exercises:

A—Practice in converging with prisms when the eyes are fixed on distance.

B—Practice in converging with prisms when the eyes are fixed on a near object.

C—Practice in diverging with prisms.

D—Practice in converging on an approximating point.

*This used only when there is much hyperphoria, producing vertical separation of the images. In hyperphoria, a patient with good converging power can fuse the two images of a vertical line, but not of a dot, because the vertical separation throws the two images of a dot apart, even if the lateral deviation is corrected by converging, while under the same conditions the two images of a vertical line are continuous.

HOW THE EXERCISES ARE DONE.

Exercises A and B.

In doing A, place the large target flat against the wall on the opposite side of the room, at least fifteen feet from the eyes; put on your distance glasses and look sharply at the bull's-eye. Then put before either of the eyes a prism with its base (thick edge) turned toward the temple. If the target or bull's-eye looks double, try by concentrating the gaze to make the two images come together. When they have done so, hold the prism before the eye for a second (keeping the images together); then remove it and after a moment's rest, put up another prism (before the other eye) and proceed as before. You may do this two, three or four times in succession, according to the way the eyes behave—stopping at once as soon as they ache or begin to feel tired.

In doing B, place the small target twelve inches from the eyes; put on the reading glasses and look sharply at the small dot in the center of the target. Then apply prisms just as in exercise A, holding the base of the prism always toward the temple.

In exercises A and B, be careful not to tilt the prism up or down, as, if you do, you will throw the images off the level and you cannot then unite them. Hence be sure that the images are on a level when you are looking through the prism, and, if they are not, turn the prism until they are level.

In doing exercises A and B, alternate between the two eyes; i. e., put the first prism before the right eye, the second prism before the left, the third before the right again, etc.

Begin with weak combinations and gradually work up to stronger ones. When the stronger combination can be done readily, start with this on the following trial and then work from this up. Thus—the first two days* try simply the 10° , held first before one eye, then before the other: doing this several times in succession. When 10° can be done at once, start with the 10° before one eye and when this is removed try the 16° before the other. When 16° can be done easily, start with this before one eye and then go from this to 20° before the other. So when 20° can be done easily, exchange this for 10° and 16° together (one held before one eye, the other before the other). From this pass on to

20° and 10° together.

20° and 16° together.

*Of course, if the patient can already overcome 10° readily, the prescriber will cross this sentence out.

20° before one eye and 16° and 10° before the other (the 16° and 10° being placed side by side, so as to make one prism).

Instead of passing from a weaker to a stronger combination you may accomplish the same thing by rotating the prism held before the eye; i. e. by swinging it inward or outward, just as a gate is swung on a hinge. This in effect makes a stronger prism of it, so that with a 10° prism rotated in this way you can produce the same result as with a prism of 12° or 15°.

Exercise C.

In doing C, place the small target twelve inches from the eyes, put on the reading glasses, and look sharply at the small dot in the center of the target. Then put before the right eye the 10° prism with its base (thick edge), toward the nose, and, if the central dot appears double, try to make it look single. If you cannot do this bring the target toward the eye until the dot is single, then, keeping the gaze concentrated on the dot, gradually carry the target off until the dot doubles again. Do this two, three, or four times in succession, with the prism sometimes before one eye, sometimes before the other. Try always to carry the target just as far off as you can (to arm's length if possible), while keeping the central dot single with the prism before the eye.

When 10° can be easily overcome in this way, do the same with the 16°, and ultimately with the 20°.

Exercise D.

In doing D, put on the reading glasses; hold the small target at arm's length and look sharply at the dot or line in the center. Then carry the target steadily in toward the nose until the dot or line doubles and cannot be made single even by the utmost effort. Do this two, three or four times in succession, according to the way the eyes feel—never pushing the exercise after the eyes begin to ache or tire.

For the target may be substituted a pin with a very small white head, or a small electric light.

ORDER, DURATION AND FREQUENCY OF EXERCISES.

Do practice three times a day—at 9 a. m., noon, and 5 p. m.

At each practice do exercises A, B, C and D in the order named; i. e., A first, B second, etc.

If at any time during the course of an exercise the eyes tire or begin to pain, the exercise should be stopped, and if the discomfort keeps up for more than a moment, should not be resumed at that time. If the fatigue or pain thus caused last for more than ten

minutes, do not on that account omit the next regular exercise, but make it shorter and be particularly careful this time not to push it so far as to produce fatigue.

If at the regular time for doing an exercise the eyes pain or feel tired, still do the exercise, but make it short and be especially careful not to overdo it.

Keep up practice for weeks, or until a total of can be done in exercise and a total of in exercise . Then stop practice and take it up again after weeks. If then the exercises can be done as well as before, stop practice again for weeks and then try once more. So do every weeks. If at any such trial the exercise cannot be done as well as when the practice was discontinued, resume practice until the former facility is re-acquired.

It will be seen that there are four exercises, distinguished by the letters A, B, C and D. One or more of these exercises may be ordered according to the requirements of the case; the things which the patient is not to do being crossed out, just as we cross out the forbidden articles on a printed diet list. So, too, the blanks in the last paragraph are filled in to suit the requirements of the case, and any additions to the directions or any modifications that may seem necessary can easily be written in, in the proper place.

It will be noted that all the apparatus that the patient will need to buy, is the three prisms. (In some rather rare cases, one or two prisms of a strength other than those noted may be required.) The targets the patient can easily make for himself.

Exercises A, B and D, are used in cases of exophoria. In cases of divergence excess, in which there is marked exophoria for distance with high diverging power, all three exercises are used. If the exophoria is more marked for distance than for near, and the converging power is perfectly normal, special stress is laid upon exercise A. This is particularly the case, if there is a tendency to crossed diplopia at distance. In some cases of this sort, it may even be advisable to omit exercises B and D. On the other hand, exercises B and D, must be pushed in proportion as the element of convergence insufficiency predominates. In such cases the exophoria for near is greater than for distance, and the convergence near-point has receded too far from the eyes. In cases of pure convergence insufficiency, in which there is little or no exophoria for distance and the diverging power is often actually subnormal, I

generally prefer to omit exercise A altogether. In fact, when the diverging power is low exercise A may do positive harm.

In some cases of convergence insufficiency, exercise D alone, may accomplish all that is desired, but as a rule needs to be supplemented by exercise B.

Exercise B and particularly exercise A should be avoided if there is a tendency to spasm of accommodation, as both may tend to aggravate this condition. Per contra, they are of distinct value in cases of subnormal accommodation, particularly when associated with convergence insufficiency. In such cases, I am accustomed to combine these exercises, in which both eyes are made to converge strongly, with exercises of the accommodation in each eye separately. This I do by making the patient cover one eye and focus with the other as hard as he can upon the hair line of the accommodation disc* while the latter is brought closer and closer to the eye.

Exercise C is used for practicing the divergence in cases of convergence excess. It is also used for off-setting any excessive effects produced by exercises A and B. For example, if a patient immediately after doing exercise A develops a temporary homonymous diplopia, he should forthwith practice exercise C until the diplopia disappears. In the rather rare cases of combined divergence and convergence insufficiency, exercise C should be regularly combined with exercise B, and exercise A should be omitted altogether.

Exercise C may also be employed in cases of spasm of accommodation.

The patient should fully understand the directions given under the head of "Order, Duration, and Frequency of Exercises." In laying down directions as to the total length of time, during which the exercises should be kept up, the physician must be guided by the condition present and by the progress of the case. In order to do this, he must see the patient from time to time, both to satisfy himself that his orders are complied with, and also to note the advances that have been made and any resulting improvement in the symptoms. As a general rule, four to five weeks are required to produce the best results in cases of convergence insufficiency, and the patient should be able to overcome prisms, base out, of an aggregate amount of at least 46°. If the patient acquires this facility in this time, I usually direct him to omit the practice for four weeks. If at the end of this period he can still do it as well

*Described in Ophthalmic Record, August, 1909.

as when he left off he can let the matter rest for another four weeks and then try the exercise again. In other words, he is to see to it, by tests made at regular intervals, that he keeps in practice.

All of the exercises may be used to modify the effect of operations on the eye muscles. Exercises A, B and C, are particularly useful after a tenotomy of the externus done for a divergence excess. In such cases measurements of the deviation for distance and near are taken daily after the operation, and the exercises are pushed, omitted, or modified according to the findings thus obtained.

DOUBLE CROSS-CYLINDER.

JOHN NEELY RHOADS, M. D.,

PHILADELPHIA.

After my article, "Improvement on the Cross-Cylinder," printed in the OPTHALMIC RECORD, April, 1909, I received many letters asking me to explain its action, from which I infer that the use of the cross-cylinder is not general, and that few understand it. I believe that much of the mystery is due to the fact it has to be inverted or turned ninety degrees every time it is used. Believing the cross-cylinder to be absolutely necessary to correct refraction, I have devised a *double* one, which does not have to be turned or reversed.

The double cross-cylinder, as seen in the cut, consists of two cross-cylinders with their similar axes diametrically opposed. The outer half of the instrument, marked $+25$, has its plus axis parallel with the long axis of the instrument, and the inner half, marked -25 , has its minus axis also parallel to the instrument's long axis. Each cross-cylinder is one inch long in its plano-convex shape and is one and a half inches wide, making the completed instrument two inches long by one and a half wide. The length of the handle, attached at forty-five degrees, is three and a half inches.

It is not necessary to understand the double cross-cylinder, nor is it necessary to have any faith in it. It brings the same results whether understood or not. Whether the directions are intelligently carried out, or empirically gone through with, is immaterial. If the instrument is used according to directions and its lead followed it is sure to bring gratifying results.

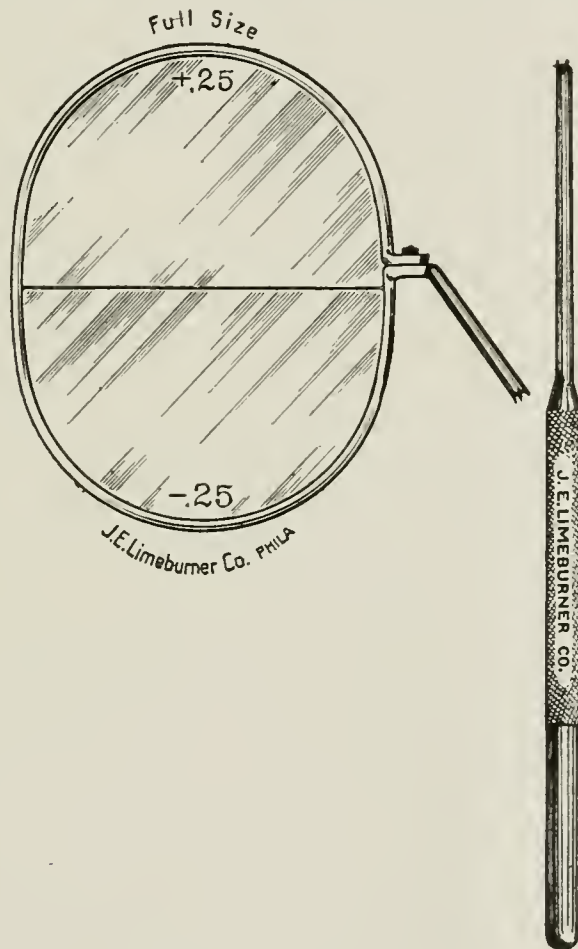
My method of using the double cross-cylinder is, of course, to place the objective correction in the trial frame and then prove it

with the new instrument, and with the minus and plus spheres and *empty ring* instrument. In a given case we will assume the correct glass to be plus 75 Cy., axis 90. I would put a plus 50 Cy. in the frame at ninety and say: "I am going to put two glasses before you; which would you rather have?"

"First?" (plus end and axis of the double cross-cylinder on line of axis of plus 50 Cy. in frame.)

"Second?" (minus end and axis of instrument on line of axis of 50 Cy. in frame.)

If he says "First," I replace the plus 50 Cy. with a plus 62 Cy., and if he says, "Second," I replace it with a plus 37 Cy. and swing



for axes, and then try the sphere and empty ring instrument, and so continue changing by twelfths until the patient begins to hesitate, when I say that I will make three changes this time, and I want you to tell me which you would rather have: "First?," "Second?" or "Third?," and for the third simply pass the instrument beyond the frame (and rarely will the patient realize that there is not a glass in front of him). I change the glass according to his answer. If he answers "Third," I take the glass out of the frame

and deliberately place it in the case and take its mate and place it in the frame. I deem it a gross mistake to allow the patient to feel that he can earn a rest by any certain answer, or can keep a glass in by his *own choice*. In other words, *I always change a glass after every test even if I have to put a like one back.*

It will be seen in using the double cross-cylinder that the patient cannot get a glimpse of the test card while the test is being made, unless the operator permits him. All users of the old cross-cylinder must have noticed how often the patient got a view of the card while the instrument was being turned before him, and must have heard him say: "I would rather have the one that is in now." Such a blunder often results in the patient choosing his own glass, which is the most inexact and unscientific thing for an operator to permit.

In using the old instrument it is next to impossible to turn the glass over and have the axes cross exactly, and as for turning the glass around, as those do who do not have handle on their trial lenses; only one out of a thousand can twist it just ninety degrees every time.

To sum up: The double cross-cylinder dispels the mystery of the old cross-cylinder. It does not permit the patient to see the card without looking through the instrument. And most important of all, it takes the responsibility of selecting the lens from the patient and places it on the operator.

TWO CASES OF DOUBLE PERFORATION OF THE EYEBALL BY FOREIGN BODIES, WITH RECOVERY OF PERFECT VISION.

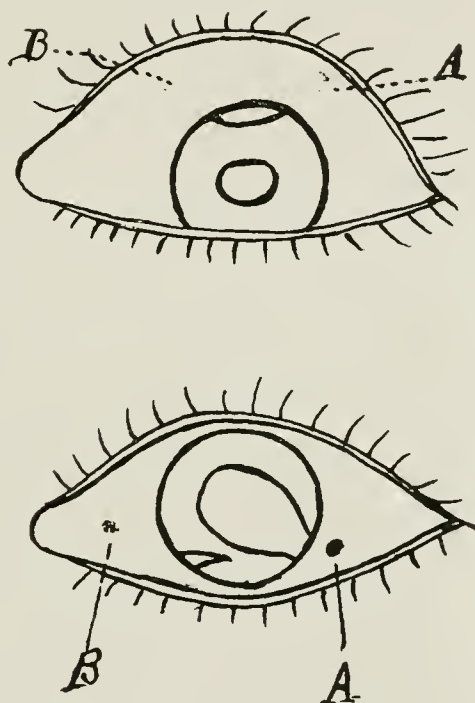
BY HARRY FRIEDENWALD, M. D.,
BALTIMORE.

The following cases are reported on account of their rarity and of their favorable outcome. In both the foreign body perforated the sclera near the limbus, passed through the ciliary body and the posterior chamber and out through the sclera near the limbus, and was found under the conjunctiva. The only permanent damage in both cases was iridodialysis, but in both the recovery of vision was complete. Cases of this form of injury are not mentioned in the standard works nor by Ramsey in his "Eye Injuries and Their Treatment," (Glasgow, 1907), nor by Praun in his "Verletzungen des Auges," (Wiesbaden, 1899). Wagenmann, in his chapters on

Injuries, in the new edition of the Graefe-Saemisch Handbuch, states that double perforations of the eye quite rarely result from punctured or incised wounds, but double perforations are not uncommon in the case of small penetrating foreign bodies which lodge in the orbit, and he states that he proposes to take up this subject in a subsequent portion of the work. This has not as yet appeared.

Case 1. Double Perforating Injury by Explosion of Copper Cap.

Marie W., aged 7, was brought into my service at the Baltimore Eye, Ear and Throat Charity Hospital on July 4, 1902. She had been struck in the left eye shortly before as the result of the ex-



plosion of a small cap. There was a small wound in the upper lid, a small perforating wound in the upper temporal ciliary region where the foreign body had entered and a second scleral wound in the upper nasal ciliary region where foreign body was seen lying under the conjunctiva. The anterior chamber was filled with blood and a large air bubble. The foreign body was removed through a small conjunctival incision and was found to be a piece of copper cap, in the form of a scale, 5 mm. by 2 mm. The eye was kept at rest. As the blood in the anterior chamber disappeared it was seen that there had also been hemorrhage into the vitreous and that there was dialysis of the iris at the upper border.

When the child had improved and could be tested, it was found that the injured eye had been her better eye and that there had

been convergent strabismus of low degree of the right eye with markedly impaired vision (about 20/200). Improvement from the injury was rapid. No signs of infection appeared. Two weeks after the injury the fundus could be made out fairly well and appeared congested; vitreous opacities were still present. The vision of the injured eye was now 20/50 and it remained so until the following October, when she was last seen.

For the purpose of finding out her present condition, the patient was sent for and examined March 26, 1911, almost nine years after the injury. The left eye appears perfectly normal but for the iridodialysis. The scars can be found, but are almost invisible. The fundus is perfectly normal and the central vision is perfect. Accommodation is good, and in conformity with her age. There is but slight strabismus and the vision of the right eye is just as defective as it was nine years ago.

Case 2. Double Perforating Injury by Birdshot.

George R., aged 21, was shot September 5, 1910, while hunting reed birds. He applied to the Mercy Hospital, where a large number of birdshot (about 30), were removed from the left side of his face and body, and he was referred to me because some of the shots had entered the eyelid and eyeball. I saw him about six hours after the injury. In addition to the numerous marks over the left side of the face, I found that one shot had entered the left eyeball on the outer side near the limbus and just below the horizontal meridian. A shot was seen a few millimeters from the cornea under the conjunctiva on the nasal side. At site of the former wound there was a small prolapse of the iris. Of two X-ray pictures that had been made before his visit to me, one (a lateral view), had turned out well and gave the appearance of a shot possibly in the eyeball. The patient was put to bed—atropia was instilled and on the following day the shot lying under the conjunctiva (No. 10), was removed, and the prolapsed iris was excised. Two further X-ray plates (a lateral and an ant-posterior view), showed that while there were still a number of shot in the head, there were none in the eye or in the orbit.

The wounds healed without any marked reaction, the anterior chamber rapidly cleared up and it was found that in addition to the coloboma of the iris, produced by the excision of the prolapsed iris, there was also an iridodialysis in the lower quadrant. Vision rapidly improved. On September 18, vision was 16/40. The fundus was seen to be perfectly normal and the eye was but slightly

congested. September 29th, vision was 16/30 and with + 0.75 S, V. = 16/15. On April 19, 1911, he was examined for the purpose of determining the final result. It was found that his vision was 16/15, 16/10 almost, somewhat better than his right, healthy eye. There is no evidence that the suspensory ligament had been injured.

It is interesting to note in both cases that the lens escaped without any injury. The path of the foreign body was evidently through the ciliary body and periphery of the posterior chamber, thus tearing the iris from its attachment.

It is further interesting, that in neither case was the suspensory ligament injured, for neither case showed the slightest dislocation of the lens—nor was there any irregular ciliary contraction such as would produce lenticular astigmatism; tests were made with astigmatic charts with the accommodation at rest and under strong accommodative effort and no inequality of the lines could be detected.

INFLUENCE OF SALVARSAN ON THE EYE.*

By W. H. CRISP, M. D.,

DENVER, COLO.

From two points of view the influence of salvarsan on the eye is bound to interest both the oculist and the general physician. The syphilitic affections of the eye are at the same time among the most important of the ocular diseases, and among the most disastrous of the complications of general syphilis. When "606," as it was first called, began to loom before the medical profession as a new cure for lues, it was natural to ask whether the new drug would prove as efficient in curing these symptoms as in controlling syphilitic manifestations elsewhere. But a further question of profound importance also arose. Would salvarsan prove dangerous to the most precious of the organs of special sense? Any such effect must act as a vital drawback to the general employment of Ehrlich's discovery.

Some years back atoxyl was placed before the public and loudly praised for its specific action on syphilitic phenomena. But its popularity was short lived. In the early part of 1905 Bornemann reported a case of optic atrophy due to the use of atoxyl.

*Read before the Medical Society of the City and County of Denver.

Other accounts of a like nature followed. Then arsacetin was put forward as being a substitute for atoxyl which did not possess the faults of the latter drug; but only to be met after a while with the same criticism. These and one or two other drugs of like purpose and like defect are organic derivatives of arsenic. Salvarsan is also an organic compound of arsenic; and Ehrlich himself evidently at first shared the general fear that it might produce ocular injuries akin to those resulting from atoxyl and arsacetin.

Dealing first with what is perhaps the less vital question, viz., as to the ability of salvarsan to control ocular disease due to syphilis: it is clear that in ocular lues much is often to be gained by the use of "606," although less perhaps than in general syphilis. The reports scattered through the literature of the latter half of 1910 have been carefully grouped by Richard Cords in a paper to only the general findings of which reference can here be made. A number of striking successes were obtained in the treatment by salvarsan of syphilitic iritis, optic neuritis and choked disk, and pareses of the ocular muscles. Successes were also described in cases of orbital gumma and periostitis and some other miscellaneous ocular disturbances. In the treatment of experimental luetic keratitis in rabbits striking results had been obtained, but with a few exceptions these were not repeated in human patients. One or two writers spoke of a slight improvement in vision in cases of optic atrophy, and there were a few recorded cases of benefit obtained in treating chorioretinitis. Some failures in the treatment of iritis, optic neuritis, chorioretinitis, and muscular pareses were also reported.

Since the preparation of Cords' paper, a number of other cases have been reported, some of them remarkable. Salvarsan seems often to succeed where mercury has failed, although it must also be said that the sequence has sometimes been reversed. It is noteworthy that here and there a writer has seen decidedly good results in parenchymatous keratitis, among these being Wibo and De Lapersonne and Léri. On the whole, however, mercury and salvarsan have proved almost equally ineffective in this corneal disease. Among other excellent results in the treatment of vitreous opacities, a case is reported by Coover in which one administration of "606" was followed by improvement of vision from light perception to R. 6/15 and L. 6/7 +.

As regards the second and more vital question, viz., as to possible toxic dangers to the eye from salvarsan: the early fears of

injury to the optic nerve have not been justified. In the accumulated records of 25,000 or 30,000 cases Ehrlich could only find one instance in which a previously healthy eye showed signs of optic atrophy after the use of salvarsan. In this case, reported by Finger, however, it appeared that the injection of salvarsan had been antedated by courses of treatment with arsacetin and enesol, another arsenic compound. On the other hand, a number of accounts have been published of the appearance, after treatment by salvarsan, of a variety of ocular and other disturbances which some authors were disposed to attribute to a toxic effect of the drug.

Ocular syphilitic relapses, occurring some time after apparent cures by salvarsan of general syphilis, form an important feature of Cords' survey of the literature. Several cases of severe iritis, numerous cases of neuritis, and cases of choroiditis and ocular muscle paralyses were recorded by various authors as thus occurring. In a large proportion of these cases, and of cases similarly involving other cranial nerves, chiefly the seventh and eighth, the Wassermann reaction was negative, and no syphilitic ailments were then manifest. Benario has been able to collect 126 cases from a total material of at least 14,000 syphilitic patients treated with salvarsan in various clinics. Most of them relate to the second stage of the disease, and in great part they occurred after the use of rather small doses of the drug. The optic nerve was involved 41 times, the oculomotor 8, the trochlear 2, the abducens 3, and the auditory 62.

These post-salvarsan disturbances were of such obvious importance that Ehrlich himself felt it necessary to make them the subject of a special article. He dismisses the possibility of their being due to salvarsan poisoning, and comes to the following conclusions: They are manifestations of syphilis. Relating mainly to cranial nerves enclosed in bony canals, they arise from isolated groups of spiröchetes persisting in these protected regions after the sterilization of the general mass of organisms. The striking clinical symptoms are due, not to a selective distribution, but to their anatomic location.

The same question has been taken up by other writers. Stern, among others, is definitely convinced that the salvarsan is directly responsible. He administered salvarsan to a patient at the latter's own request, although a course of mercury had been used, there were no syphilitic symptoms, and the Wassermann test was negative. Arsenic was found in the urine six weeks after the injection.

Nine weeks after the injection the Wassermann was again negative. Yet at the same time the patient had developed a paresis of the superior oblique and a slight weakness of the abducens.

Apart from Ehrlich himself, the most thoughtful contribution so far to this aspect of the salvarsan discussion is by Géronne and Gutmann. In a clinical record of 300 cases of syphilis treated with salvarsan at Wiesbaden, these authors have seen and carefully studied thirteen relapses involving some part of the nervous system. In only a small proportion of these thirteen cases was there an involvement of the eye or related structures; but since for disturbance of the optic and oculomotor and the auditory and facial nerves, as well as of the meninges, the mechanism is probably closely similar, the whole series may well be referred to here. The troubles, most of which occurred within four or five months after the primary infection and within six or eight weeks after the first dose of salvarsan, include: Three cases of involvement of the meninges, in one of which there was paralysis of both facials and in another paralysis of the seventh and eighth nerves; another case of facial paralysis: two cases of optic neuritis, one with homonymous hemianopsia and bilateral otitis interna; one case of oculomotor paresis, and six cases of otitis interna, one of them with Menière's symptom complex.

It will be noticed that a large proportion of these cases relate to the auditory nerve. But there is no reason to believe that the mechanism of involvement of this nerve differs from that of the optic and oculo-motor nerves. In all important features, also, the cases reported by Géronne and Gutmann may be considered as typical of post-salvarsan relapses seen in the same regions by other writers.

Are these cases due to, or do they occur in spite of, the salvarsan injections? In the first place, it is to be noticed that the symptoms are not those usually found in arsenic poisoning. Nor on the other hand do they resemble the disorders arising after the use of atoxyl, arsacetin, or other such drugs. We are also reminded by Géronne and Gutmann that these manifestations have only been observed following the use of salvarsan for syphilis, and in no instance after its use in other diseases. But the most significant evidence is furnished here, as formerly in doubtful cases of syphilis, by the therapeutic test. As a rule, it may be stated that these post-salvarsan disturbances of the ocular and other cranial nerves have been successfully treated by a further dose of salvarsan

where such further dose has been given. It would be strange indeed if salvarsan, or any other drug, could be generally relied upon to cure a diseased condition of which it was itself the cause. Other cases have been cured by mercury, and it would be at least a coincidence if mercury, hitherto specific for syphilis and nothing else, proved as reliable a remedy for poisoning due to another drug as it was already known to be for lues.

I will state briefly the experience of Géronne and Gutmann in this matter. It does not differ essentially from that of other authors whose practice has been similar. In seven of the thirteen cases a complete symptomatic cure resulted from a further injection of salvarsan, the dose varying from three to six decigrams. In one the single after dose produced an almost complete cure. In one the first after dose produced a partial, and the second a complete cure. In one the single after dose partially cured, and the treatment was continued with mercury and iodide. In one mercury and iodide cured the relapse; but the patient later suffered from headache and dizziness which was only relieved for a short time by each subsequent dose of mercury with iodide, or of salvarsan. Two patients refused specific treatment for their relapses. The two cases of optic neuritis were cured by single doses of 0.3 and 0.4 gm. respectively. The case of oculomotor paresis was the one which required two after doses.

But although we are apparently quite justified in regarding these relapses as syphilitic in character, it is also clear that they occur more frequently after treatment with salvarsan than after mercury; or at least that they appear to be more frequent because they occur sooner after the apparent cure of general syphilis. This is a fact for which no clearly adequate explanation has yet been offered. All that can be said with certainty is that a drug whose action is so powerful and so rapid as that of salvarsan must change the course and chronology of syphilis from those with which we have previously been familiar, whether without treatment or under the slow and gradual action of mercury.

Is it possible to avoid these cranial nerve relapses? Géronne and Gutmann's answer to this question may be summarized as follows: In the light of the experience already accumulated, while further dosage of salvarsan may well be tried, and that without fear of the drug, it will sometimes fail. It is likely that some of these cases are less amenable to salvarsan than the average case of syphilis. In these instances we must use mercury. But whatever

treatment is used, whether mercury or salvarsan, it must be used promptly. Expectant treatment is neglecting the case. Injury is often more rapid and more irretrievable in the nervous system than anywhere else. Early involvement of the cranial nerves points to a form of syphilis which is specially disposed to affect the nervous system, and prompt intervention is therefore essential.

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Reports of Societies.

WILLS HOSPITAL OPHTHALMIC SOCIETY.

MAY 2, 1911.

DR. WM. CAMPBELL POSEY, CHAIRMAN.

A case of probable sarcoma of the orbit was exhibited by Dr. Klinedinst, of York, Pa. The growth occupied the upper portion of the orbit of a young man and had been slowly progressive in growth since early childhood. The tumor mass was freely mobile and seemed to spring from the upper, inner portion of the orbit. The chairman and Dr. Zentmayer thought the tumor would prove to be fibro-lipomatous in nature.

Dr. Posey showed a case of angioma of the upper, inner angle of the orbit in an infant. Marked diminution in the size of the swelling had followed local applications of trichloroacetic acid by Dr. Knowles. Dr. Posey said that he had had marked success from Wyeth's method in one case, which consisted in injecting hot water round about the dilated blood vessels. He had also had an opportunity of following applications of so-called "snow," where rapid improvement was also obtained. He had also used electrolysis to advantage in several other cases where the dilatation of the veins was not so great. He had treated an interesting case of so-called "relapsing exophthalmus." In this case the swelling of the veins had been at the back of the eye and whenever the patient leaned forward or any compression was exerted on the return venous circulation from the orbit, exophthalmus appeared.

Dr. Frank C. Knowles (by invitation), spoke of the methods used in the treatment of angiomata. He used collodion, tri-chloroacetic acid for superficial lesions, and carbon-dioxide snow for deep seated lesions. The electric needle was used to remove any hairs that might be present before the snow was applied. Radium, hot water injections, X-ray have been used. Carbon-dioxide snow method as suggested by Dr. Pusey of Chicago is the best method.

Dr. Risley had seen four cases in which he considered operative interference necessary. In a case of a young child 3 months old, which presented an angioma of the lid about the size of a grape, he used the electric needle and then painted the tumor with collodion. This resulted in some improvement which, however, was only temporary. The electric needle was again used, followed by the introduction of a series of double sutures which were after-

ward tied. The entire mass soon sloughed off, and the final result was very satisfactory.

Dr. Berens said that in thirty thousand eyes examined he had seen but six cases of angioma of the orbit, and in each instance the involvement of the surrounding tissues was so great as to render operation impossible.

Dr. Zentmayer exhibited a sailor 24 years of age with syphilitic iritis, who had been treated with salvarsan. The primary sore had been contracted about one year before. The eye had been inflamed for about two weeks before coming under treatment. Atropin ($\frac{1}{2}$ grain to ounce), had been used for two days. There was intense ciliary congestion with free deposit on the posterior surface of the cornea. The pupil was small and irregular. There was a marked neuritis with distention of the veins. In the fellow eye there was a pseudoneuritis. He was sent for an opinion as to the advisability of using salvarsan. Considering the neuritis as a symptom of the inflammation in the anterior segment of the globe the use of salvarsan was recommended. He received the usual dose in the buttock. Thirty hours later the pupil was so widely dilated that the narrow margin of iris was scarcely visible. The deposits on Descemet's membrane had been mostly absorbed. There was considerable pigment on the capsule of the lens. No change in the neuritis. Ciliary congestion much less marked. Two days later the eye was white and quiet. One week later the neuritis had improved and there had been no relapse of the iritis.

Dr. Zentmayer also exhibited a case of typical tuberculous sclero-keratitis in a colored woman 35 years of age. At the nasal margin of the cornea within the sclera there was a small circumscribed violaceous mound, in juxtaposition within the superficial corneal lamella there was a triangular area of infiltration with its apex towards the pupil. There had been a similar lesion to the temporal side. The V. Pirquet test was positive. She has been receiving small doses of tuberculin being treated as an ambulatory case.

Dr. Zentmayer exhibited a case of Vossius ring opacity of the lens. The child had been struck in the eye by a fist. There followed a severe iridocyclitis. On the third day, a ring shaped opacity made up of dots was made out on the capsule of the lens. There was marked comotio retinae with extreme tortuosity of the retinal vessels. The opacity is clearing from below.

Dr. Zentmayer stated that the explanation of the opacity given

by Vossius was that it was due to the impact of the blow on the surface of the cornea driving that membrane inward and either by direct pressure, or by increasing the hydrostatic pressure within the anterior chamber forcing the pupillary margin of the iris against the anterior capsule of the lens.

Dr. Zentmayer exhibited a case of vernal conjunctivitis in a boy of 6 years. It was the third recurrence and was quite a typical case. The subjective and the objective symptoms had been much improved by the use of salicylic acid ointment 5 grains to the ounce of vaseline, and a wash of cocaine, adrenalin chloride solution and boric acid.

Calcium Chloride in Certain Ocular Affections.

Dr. S. D. Risley presented a case of rapid, probably endogenous, infection following the extraction of cataract. The patient, a man, aged 55, of German birth, large, fat, and flabby, consuming large quantities of beer and gross food had been under observation for two years with posterior polar opacity in both lenses, floating vitreous webs and choroiditis.

His habits of living had been corrected and the eyes and nostrils treated locally. The general and local conditions improved but the opacity of the lenses increased to ripe cataract maturing first in the right eye. In June, 1899 extraction by the simple method was successfully performed and the man discharged from the hospital but soon after returned with a plastic iritis probably rheumatic in type which ran a chronic course but finally recovered, leaving a dense membrane in the pupil. A secondary operation was performed and $v = 6/xii$ secured.

On March 6, 1911, he returned for operation on the left eye. A smooth simple extraction was done leaving a clear, black, round, central pupil. There was nothing in the technic of the operation or the appearance of the eye to suggest trouble. The operation was performed at 2:30 p. m. The following morning the senior resident found the lids puffy, the cornea streamy, and anterior chamber restored, but filled with a gray, turbid aqueous humor. At 2:00 p. m. Dr. Risley found the eye deeply injected, the conjunctival flap oedematous and the cornea and aqueous so turbid that the iris could be seen very indistinctly but appeared swollen and gray. The pupil was contracted. He had never before seen any eye so profoundly diseased so soon after operation, recover, and in this case gave a most gloomy prognosis. His colleagues at the hospital, Dr.

Zentmayer and Dr. Schwenk who chanced to be in the ward saw the patient and concurred in the grave prognosis.

Hot salt stupes, blood from the temple, and atropia were directed locally. Internally he received 5 grains of chloride of calcium every three hours. In twenty-four hours to Dr. Risley's great surprise, the eye was apparently out of danger. The cornea was almost clear, the turbidity of the aqueous had disappeared, the pupil was dilated but irregular because of attachments to the capsule. The subsequent recovery was uneventful and the man's detention in the hospital but little, if any, prolonged by his experience. He was operated upon on March 6th and left the hospital with an eye free from infection on March 24th and on April 17th $v = 6/vii, i/2$ with his correcting glass. Another significant fact was the marked improvement in his general health, also improved vision in the other eye, the vision having risen from 6/xii to 6/vi.

Dr. Risley exhibited a second case admitted ten days before for enucleation. The eye had received a severe injury a month before admission. There was a partially absorbed traumatic cataract, ciliary tenderness, a deeply injected ball and a ciliary staphyloma. The cornea was steamy, the aqueous loaded with gray exudate. The iris was tremulous and glued to the remaining lens capsule. There was pain, marked photophobia and profuse lachrymation. He was placed in bed, cold compresses and atropin directed. These were continued for several days without notable relief. All other treatment was then stopped and he was placed on calcium chloride, 5 grains, every four hours. In two days the tenderness, pain and photophobia disappeared and at the end of a week the cornea was clear, the exudate in the anterior chamber, ciliary injection had greatly diminished and when shown had entirely disappeared and the ciliary staphyloma much reduced.

Dr. Risley did not venture upon any explanation of the action of the drug, the benefit of which seemed apparent in these cases. It had long been employed in the arrest of hemorrhage but he had not known of its use in the group of ocular affections he had shown. He was inclined to think that the administration of other salts of the alkaline earths might have proved of equal benefit. For example, he had often seen rapid and striking improvement follow the use of citrate of potassium in acute coryza and in acute and chronic stuffing of the nostrils, frontal and ethmoid sinuses, the eustachian tubes and tympanic cavity. In acute cold, coming on after exposure in lower temperatures, there was doubtless a

disturbance of the chemico-vital processes, possibly acid blood and lymph streams, that the alkaline earths in soluble form speedily neutralized the acidity and restored the normal balance in metabolism. He had recently employed the calcium chloride as a substitute in mucous membrane disease instead of the potassium salt and apparently with equally satisfactory results.

Dr. P. V. K. Schwenk read a paper on the "Beneficial Effects of Local Applications of Quinine in Infections After Operations Upon the Globe." The local application of quinine to infected corneal ulcers and infections involving the globe is nothing new in Wills Hospital. His attention was first called to its use by Dr. Fisher over twenty years ago, when infections were more common. Infection following lens extraction, at this advanced age of antiseptic surgery, is quite rare yet, in spite of all the care in preparing both patient and paraphernalia, a case, or a series of cases, will occur now and then in the hands of the most skilled and painstaking operator. In some of the cases the source of infections is a mystery. It is claimed that endogenous infections may be due to capillary microbial embolism of the vessels of the retina and choroid, and that these may contain the same bacteria that produced a general infection. If this be the case surgical interference will render such eyes susceptible to infection. If infection occurs within forty-eight hours after operating Bach claims it is due to instruments or exogenous and if later it comes from within or endogenous. The infections occurring after four days should be regarded to be endogenous.

The quinine locally prevents the migration of the white blood corpuscles which probably are the carriers of the bacteria; it also has the effect of preventing their segmentation or growth. If the theory of microbial embolism is correct the internal administration of quinine is also indicated, and thus, he has in quite a number of cases used quinine locally, and at the same time given grs. 2 to grs. 3 every 2 or 3 hours, internally, until marked tinnitus was produced. The muriate of quinine in solution (grs. 2 to 3 to the ounce of water), three drops every 2 hours for two or three days, has saved the loss of eyes which to him appeared almost hopeless. Mr. J. G., aged 65 years, had combined lens extraction done on Feb. 18, 1911. On Feb. 20th slight reaction, wound closed, anterior chamber formed, some capsule and little cortical in pupillary area. In afternoon of this date slight haziness of aqueous with some clouding of cornea, considerable secretion in conjunctival side.

Feb. 21st formation of exudate beginning, thick and light yellow in color in upper part of anterior chamber mostly. At this time was ordered a solution of muriate of quinine (grs. 2 to the ounce) to be applied every 2 hours together with grs. 2 to be given internally every 2 hours. Hot salt solution more or less continuously and atropin locally.

Feb. 23d exudate organized and now localized in center of anterior chamber and extending up to edges of wound. He then was given unguentum hydrarg protoiodidi (30 grs. to the ounce) twice daily.

Feb. 26th patient out of bed. Injection less, anterior chamber clear in region of iris but still considerable light yellow exudate on edges of capsule pushing iris forward.

March 6th exudate has entirely disappeared from anterior chamber and now only fills pupillary space.

March 7th pupil contracted to 3 mm., exudate less. Atropin (grs. iv to the ounce) 4 times daily.

March 21st eye practically quiet. Exudate has entirely disappeared. Pupil space showed an opaque film. Inunctions stopped and capsulotomy advised.

March 23d capsulotomy was done, making a vertical and horizontal incision giving a good opening centrally placed.

March 29th, moderate reaction, but a clear central opening.

April 1st, eye almost quiet.

April 14th, $+ 9. = + 2.$, cy ax $25^{\circ} = 6/6 - 1$.

Dr. Posey said that there were two kinds of infection after cataract, *i. e.*, plastic and purulent and both might be the result of endogenous or exogenous origin. In infections of a plastic type, he had had successful results follow the use of the salicylates and he thought it not unlikely that many other eliminative forms of treatment might be valuable in this class of cases, as instanced by the results obtained by Dr. Risley and Dr. Schwenk in the administration of calcium chloride and quinine respectively, but where the infection was purulent, he had never seen any form of treatment avail. He had had but little experience in local applications of quinine to the eye, but in one case of ulceration of the cornea lately seen by him, where the eye had done well under canterizations with carbolic acid, rapid breaking down of the cornea and subsequent loss of the eye seemed to follow a change to quinine applications.

In connection with Dr. Schwenk's paper Dr. Ziegler spoke of

having seen quinine used in his early experience, but that he now used formalin injected into the anterior chamber.

Dr. Posey showed a case of interstitial keratitis due to inherited syphilis, which showed marked improvement following two intravenous injections of salvarsan. No other form of internal medication had been employed.

Dr. Posey showed a case of complete cataracts of both eyes in a young woman. Vision was said to have been excellent until within three or four weeks of its reduction to light perception by the lenticular haze. The patient had been subject to a seboraceous or eczematous eruption on her face for many years. Examination of the urine was negative as regards sugar and albumen. Dr. Posey spoke of the probable connection between the lenticular and skin lesions. Both these structures are of epiblastic origin and he thought it not unlikely that the same dyscrasia which had produced the skin eruption had brought on the cataracts. He was trying the effect of an anti-diabetic eliminative plan of treatment, but operation would be resorted to if this failed.

Dr. Zentmayer said that in the past year two articles had appeared which indicated a relationship between vitiligo and inflammations of the choroid and he thought this was suggestive of a possible relationship between the skin affection from which the patient suffered and the cataract, as Dr. Posey intimated.

Dr. S. D. Risley was much interested in the suggestion of Dr. Posey and the remarks made by Dr. Zentmayer as to the possible relation between the skin disease and the cataract in the patient presented. He thought that, reasoning *a priori*, the association was probable since both tissues were developed embryonically from the ectoderm.

Dr. Posey also showed an extensive plastic operation on the lids and eyeball, to relieve cicatricial adhesions following a burn. After division of the adhesions between the lids and the lids and the globe, he had inserted a long skin flap which was taken from the side of the nose, and the flap was stitched to the bulbar conjunctiva. Union had been prompt and the swelling of the lids and adjacent portions occasioned by the operation was rapidly subsiding.

J. MILTON GRISCOM,

Secretary, pro tem.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting February 16, 1911. Dr. William M. Sweet, Chairman, presiding.

PNEUMOCOCCIC CONJUNCTIVITIS.

Dr. Leonard D. Frescoln exhibited two cases of "Pneumococcic Conjunctivitis" from the service of Dr. Howard F. Hansell at the Philadelphia Hospital.

CASE I.—Female, aged two years. Following an attack of measles in December, 1910, a bronchitis and staphylococcic ear discharge, and a vaginitis developed. The last of these conditions was negative for the gonococcus. In about a month a virulent conjunctivitis developed in the right eye, associated with a ropy secretion that would cling to the lashes. An examination of the secretion determined the presence of the pneumococcus. The child was transferred to the eye ward, and subsequently an ulcer developed on the lower portion of the cornea. At the present time the eye is making a good recovery. There were several cases of pneumonia in the same ward with the patient while she was in the isolation building.

CASE II.—The condition in this case was similar to the above, except that the patient was admitted directly from the street. There was no history of measles and no ulcer formation. In this case the right eye was also affected, but is now making a rapid recovery. Dr. Frescoln stated that these were 2 of 8 cases that had come under his observation at the hospital during the past year.

Dr. Howard F. Hansell stated that the characteristic signs of pneumococcus conjunctivitis as described by Saemisch in the second edition of Saemisch and Graefe were typically shown in the two children presented by Dr. Frescoln. The diagnosis, made certain by the bacteriological examination, could be made with a remarkable probability of accuracy from the clinical appearances alone. Both cases were monocular; the severity of the inflammation was borne by the lids and the palpebral conjunctiva while the ocular conjunctiva was far less edematous than in the Koch-Weeks or the gonococcus affection; the discharge was profuse, thin, and contained many threads and small patches of membrane, and was not thick, tenacious, and homogeneous. The conjunctiva of both lids, principally the superior, was partly covered by fragmentary membranes easily detached; and the corneae were free from involvement in one case and one cornea slightly infiltrated in a minute area in the other

case. In one respect, however, these cases vary from the classical description of Saemisch, namely, the absence of small hemorrhages in the conjunctiva. Although the children were inspected daily and carefully tended, this sign has not been noted.

Intra-ocular Growth.

Dr. Shannon exhibited a case of chorioidal tumor in a young girl, aged sixteen years. She presented at her first office visit last November the symptoms of serious iritis with marked deposits on Descemet's membrane. Vision was reduced to light perception. She responded to iodides and local treatment very quickly, and with the clearing of the media about four weeks later a swollen area with almost brilliant white reflex and with overlying edematous retina was seen between the macula and disc occupying most of this area, with the edematous retina encroaching on the disc. Although she has been under treatment with mercurial inunctions for six weeks, no appreciable change has taken place in the appearance of the tumor.

In reply to Dr. Holloway, Dr. Shannon stated that a tuberculin test had not as yet been made.

Intra-ocular Growth, Probably a Melanoma.

Dr. Holloway exhibited a male, aged forty-eight years, who in the summer of 1906 accidentally discovered that he could not see with the left eye. He visited one of the city hospitals, where he was discovered that he had a bilateral chronic glaucoma, and in September, 1906, an iridectomy was performed on the left eye. On May 19, 1910, this patient was referred, by his physician, to the University Hospital on account of a suspected tumor of the ciliary body. At that time the vision of O. D. was 6/12, while O.S. was blind. Since that time the character of the lesion has shown practically no change except that upon one visit to the hospital no signs of the tumor could be found, but upon a subsequent visit, several months later, it was readily noted. At the present time the vision of O.D. is 6/15. In the right eye the nasal field is obliterated, with a contraction of the temporal field to about 50°, and marked restriction above and below. In the right eye the cornea is clear; the temporal half of the anterior chamber is shallowed by a pushing forward of the outer half of the iris, and projecting about 1 mm. beyond the pupillary margin and inserted between the iris and the lens can be noted the smooth, rounded, brownish margin of the growth. Dr. Holloway stated that the diagnosis was somewhat in

doubt, the growth probably being a melanoma or possibly a slowly growing sarcoma. He stated that the failure to find evidences of this growth about six months ago was most interesting, and that he could not imagine that the condition was a cyst that had spontaneously evacuated itself and subsequently refilled. The fundus in each eye presents the characteristic of a chronic glaucoma, the discs being completely cupped.

Dr. Hansell inquired concerning the proposed treatment.

Dr. S. D. Risley expressed his interest in these pigmented masses on the posterior surface of the iris and at the pupillary rim. He had frequently seen large masses of this kind at the pupillary rim often invading a considerable area of the pupil in horses' eyes, but had never seen them assume any apparent pathological significance. He recalled the case of a young woman, aged about seventeen years, who had been kept under observation for several years, who had a large pigmented mass apparently larger than in Dr. Holloway's case, situated at the nasal side instead of the temporal. While under observation nothing occurred to suggest malignancy, and she finally passed from under observation. The temporary disappearance of the growth in Dr. Holloway's patient interested him greatly. By way of explanation of its disappearing from view, he suggested the possibility that the growth was pedunculated instead of sessile. In that case it might slip back into the posterior chamber and again be forced forward and assume the disc-like shape while under pressure between the posterior surface of the iris and the capsule. This possibility also suggested the possibility of its being a cyst, the contents of which may vary under varying conditions.

In reply to Dr. Hansell, Dr. Holloway stated that the case was reported from the service of Dr. G. E. de Schweinitz at the University Hospital, so that he did not have the direct management of the case, but it was necessary to remember that the patient was a one-eyed man, and that if the growth affected his own eye he would continue the treatment of the chronic glaucoma and not resort to operative interferences until there was more positive evidences of the malignancy of the growth, at which time he would resort to a radical operation.

Trachoma Bodies.

Dr. Zentmayer and (by invitation) Dr. Wm. T. Reese exhibited smears showing the v. Prowazek bodies. Dr. Zentmayer stated that several of the slides had been presented to him by Dr. Harlan Shoe-

maker, who had obtained them from fresh untreated cases in immigrants arriving at the Philadelphia Station. Others were obtained by Dr. Zentmayer from recent untreated cases occurring in a reformatory school. Dr. Zentmayer sketched the history of the finding of these bodies and the later development in the investigation of them, and spoke of the recent monograph on the subject by Herzog, which has lately been reviewed in the *Ophthalmoscope*. Herzog, through the opinion of several of the leading protozoölogists of Munich to the effect that these cell inclusions were colonies of bacteria, was led to investigate into the possibility of a metamorphosis of gonococci into cell inclusion granules. Staining gonococcal pus with Giemsa, he found more gonococci than by the usual method of staining, and also that there was a tendency for them to collect near the nucleus of the leukocyte and that they were agglutinated by a thread of plastin, giving rise to an appearance similar to the nuclear cap seen in trachoma. He believes this collection to be a transitional form. Further, in studying the changes which occur in gonococci which were undergoing degeneration, he found that the kidney shape was soon lost and a form appeared which was one-half the size of the normal gonococcus, which he considers a further transitional form. The final forms are the microgonococci, and these he considers identical with the trachoma bodies. All of these forms were seen in a case of gonorrheal ophthalmia. At first only typical gonococci were met with, but after treatment these disappeared and trachoma bodies were found.

Dr. Reese, in referring to the trachoma bodies, described them as circular, oval, or crescentic bodies made up of a large number of minute compact granules without a nucleus, which are almost always found in the epithelial cells near the nucleus, sometimes capping it. The bodies vary in size and shape, some being much smaller than a red blood cell, others are larger than a white blood cell. Sometimes they are irregular in outline, with their granules strewn for some distance in the cell protoplasm. With the blood stains, most of the granules stain a deep purple and are compact, while the large bodies and those with the loose granules stain a pinkish violet, showing a peculiar hyaline appearance. Dr. Reese further described the technique for the preparation of the smears, and stated that he preferred Leishman's stain. Dr. Reese thought that these bodies were suspicious and probably a step in the right direction, but he felt that much more irrefragable proof was needed concerning their

origin, development, and their closer connection with trachoma. He also believed that further work must be done to prove them protozoa and to overthrow the gonorrheal and other associations of the disease.

Tuberculous Keratitis.

Dr. Krauss presented a case of "Tuberculous Keratitis" occurring in a girl, aged ten years. The cornea was everywhere faintly hazed, translucent, with much new vessel formation, running from the periphery to two dense cheesy-yellow roundish areas of infiltration on each side of the centre of the cornea.

These areas had been much larger, almost coalescing previous to treatment with increasing doses of tuberculin emulsion. The maximum dose given was 1/500 mg. There were no general disturbances, though the ocular reaction was strongly pronounced after each injection.

The von Pirquet test was strongly positive. About one year previously the patient had a somewhat similar condition, which had not only failed to improve upon the use of tuberculin injections, but was made worse by each administration. Several months afterward the ocular condition cleared suddenly, though no change had been made in the treatment, which had consisted of forced feeding, tonics, atropine, dionin, boric acid solutions, yellow oxide of mercury ointment, subconjunctival injections, etc., at various times.

In her recent attack the tuberculin treatment has shown very excellent results, the patient's general health being much better and her ocular condition alleviated.

Dr. Krauss also stated that in quite a number of cases of tuberculous keratitis in children he had had unfavorable ocular reactions after each use of the tuberculin, though a general reaction was generally absent. These cases, however, healed up rather quickly about six to eight weeks after the cessation of the use of tuberculin.

Dr. S. D. Risley asked Dr. Krauss whether there had been any reaction following the von Pirquet test, the reply being negative, but that the eye grew persistently worse under its administration, so that it was found necessary to abandon tuberculin; and local conditions improving under other methods of treatment he thought might suggest a doubt as to the tuberculous character of the local infection. He had had but little experience in the use of the von Pirquet test in ocular affections, but in a considerable group of patients with tuberculous affections of the eye he had employed the hypodermic injection of Old Tuberculin, manufactured by Mulford,

and had invariably secured not only local, but well-marked general reaction, which lasted from one to three days and had then been followed by a rapid improvement in local conditions and general improvement of health. With each succeeding injection both local and general reaction grew progressively less pronounced, until in some instances the third, and in others the fourth, injection produced no result. He had in no case found anything but encouragement in the use of this procedure, but had been careful before its employment to exclude the presence of extensive pulmonary deposits or any evidence of general miliary tuberculosis.

Dr. Langdon asked whether the general improvement might account for the improvement of the local condition.

Dr. Krauss, in closing, stated that the diagnosis had rested upon the peculiar ocular condition which he regarded as typical, especially when associated with the strongly positive character of the von Pirquet reaction, the local reaction in the affected eye after each injection of tuberculin, the so-called scrofulous appearance of the child with large tonsils, adenoids, and enlarged lymph glands. In answer to Dr. Langdon he replied that the patient had improved greatly in general health previous to or coincident with the ocular improvement. He considered the promotion of the general health as very essential in the cure of the disease.

Sarcoma of Left Upper Eyelid.

Dr. G. E. de Schweinitz and Dr. E. A. Shumway reported a case of "Sarcoma of the Left Upper Eyelid," in a negress, aged eighty-one years. The tumor measured $1\frac{1}{2}$ inches long and $\frac{1}{4}$ inches broad, and hung down over the cheek. The preauricular and submaxillary glands were involved by metastasis. Under local anesthesia the mass was dissected from its position between the tarsal cartilage and skin. There was subsequent decrease in the size of the enlarged glands. A microscopic examination, made by Dr. Gordon J. Saxon, showed that the tumor was a round-celled sarcoma, free from pigment. Approximately, 80 cases of sarcoma of the eyelids are on record, about 43 per cent. of which have been round-celled, 40 per cent. spindle-celled, and the rest mixed. About 35 per cent. have been pigmented. Attention was called to the advanced age of the patient. Operation had been advised because of the great annoyance caused by the presence of the heavy mass in the lid.

Report of a Case of Syphilitic Iritis Successfully Treated by Salvarsan.

Dr. Edward A. Shumway detailed the history of a case of

"Iritis," in a man, aged thirty-five years, occurring nine months after the primary lesion. Under mercurial treatment the attack subsided in four weeks, but subsequently recurred in a more severe form. Despite vigorous treatment with mercury and aspirin, the attack failed to yield, and the Wassermann test remained positive. A subcutaneous injection of salvarsan, administered by Dr. Henry Cattell, caused a disappearance of the inflammation within three days, and the eye had remained quiet for a period of ten weeks. Reference was made to the reports of recurrence of symptoms, after injections of salvarsan, which were appearing in literature, and the fact that certain cases of syphilis seemed to be refractory to it. Dr. Shumway thought that while the drug had failed to realize Ehrlich's hope that one dose would permanently cure syphilis in man, nevertheless it was to be welcomed as an exceedingly valuable remedy, especially in those cases which did not respond to mercurial treatment.

Dr. Howard F. Hansell said that his views on the relative values of salvarsan and the mercury and iodide treatment of syphilis were not clearly formulated. To deny the merits of the former because it is new, and to extol the advantages of the latter because it has proved its worth, would be puerile. He had had lately under treatment a man with well-marked gummatous iritis, who within seven days after an intravenous injection of salvarsan had completely recovered. Synechia were broken off and exudation absorbed without the use of atropine. Several other cases of specific iritis were treated in the eye ward of the Jefferson Hospital with equally good, though not as brilliant, results from a single injection. On the other hand, recoveries under mercurial inunctions, daily sweat baths, potassium iodide, atropine, and hot compresses have been so prompt and complete that one hesitates to abandon so efficient a treatment.

The suggestion by Dr. Shumway of the German method is admirable—the intravenous injection of salvarsan followed by a course of mercury and iodide, which means practically that no means should be neglected, old or new, which contribute to a speedy and permanent cure.

Dr. Wm. M. Sweet referred to two cases of iritis treated at the Jefferson Hospital three months ago, in which there was a rapid subsidence of the inflammation on the third day after the injection, which was made subcutaneously. No return of the symptoms had been noticed since the treatment. In recent instances salvarsan has

been given intravenously, and this was now the plan followed in all cases.

Dr. Ziegler stated that he had under his care a case of interstitial keratitis that had received two injections of arsenobenzol; one was intragluteal, with moderate improvement, the other was intravenous, and proved to be most efficient in clearing up the corneal infiltrate and in influencing the Wassermann reaction.

Dr. Shumway, in closing, referred to the case of which Dr. Hansell had spoken, and said that Dr. de Schweinitz had seen the patient and felt that the optic neuritis was probably due to the presence of a gumma in the brain, and not to the action of the salvarsan. He mentioned also another patient under the care of Dr. de Schweinitz, at the University Hospital, whose pupil began to dilate after the use of "606," although it had resisted the action of the atropine, while mercury alone was used. He agreed with Dr. Hansell that the drug should be employed in iritis when possible, preferably by the intravenous method, but thought that treatment with mercury and iodides should not be neglected.

T. B. HOLLOWAY, M. D., *Clerk.*

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

The ordinary meeting of the Society was held at the Medical Society's Rooms, London, on Thursday, May 4th, under the chairmanship of Mr. Gustavus Hartridge, Vice-President.

The following card specimens were shown: Mr. Tomlinson, a model to show a curious color effect due to simultaneous contrast; Mr. Donald, a family with discoid cataracts; Mr. Worton, a case of albumenuric retinitis; a typical macula in the other eye. Mr. Nettleship read a paper entitled "New Cases of Hereditary Nystagmus." He presented two extensive new pedigrees of hereditary nystagmus; one containing 27 cases, by Dr. Auden, of Birmingham. Two other small new pedigrees and nine published ones were brought in for purposes of comparison and classification. Examination of the whole 13 pedigrees showed that in some of them the nystagmus was associated with movements of the head, whilst in other pedigrees no head-movements had occurred. Further analysis disclosed the possibly important fact that in the pedigrees showing both eye and head-movements the abnormality affected both sexes and could be transmitted by either male or female parent; whereas

in the genealogies containing nystagmus alone, with no head-movements, the abnormality was strictly limited to males and transmitted only by mothers (themselves unaffected)—the same male—limited inheritance that is seen in color-blindness, hemophilia, etc. Two isolated exceptions to those findings were recorded but the testimony for both of them was remote, indirect and regarded as inconclusive. The rapidity and amplitude of the nystagmic movements varied greatly in the different members of both the sub-groups, but the direction was horizontal in all. There was evidence that in some cases both nystagmus and head-movements had diminished with age. In almost all cases in both sub-groups the nystagmists had defective sight and marked ametropia, usually hypermetropic astigmatism, and in many of them the blue irides and relatively light choroids pointed, in the author's opinion, to some degree of ocular albinism. There was no evidence of disease of the nervous system in the affected stocks. Parental consanguinity was noted as absent in the majority and not noted as present in any. Professor Bateson (Cambridge) regarded the paper as the most important work which Mr. Nettleship had yet done on the subject of hereditary or family diseases. The suggestion which it implied was that one could classify cases into groups; those in which there was head-movements, and those in which that affection did not exist. And it was reasonable to hope that by more attention to clinical detail it would be possible to purify the cases and get out the aberrant cases, and leave a clear result. In the pedigrees exhibited there was something like Mendelian descent, though there were some hitches. He pointed out that the difficulty in forming an idea of the descent of a sex-limited affection was, that it was not accurately known how sex itself descended; so that the argument was a circular one. If sex did descend in the way in which speculation suggested, a scheme could be drawn up of a sex-limited disease. Biologists were looking to the medical profession with constant curiosity for the production of cases where some affection was limited to females, in the same way as there were known to be diseases limited to men. He did not of course, refer to peculiar women's diseases.

Mr. Herbert read an interim report on The Small Flap Sclerotomy. He reported upon a series of 54 small flap operations for glaucoma, primary or secondary, including 14 mentioned a year ago. Thirteen of these operations had been performed with Bishop Harman's twin scissors. There had been some failures, partial or complete, in blind or nearly blind eyes only. One was due to firm

adhesion of iris to the wound. An iridectomy should have been made, as it was a case of acute glaucoma with congested and swollen iris. Two other failures occurred in advanced glaucoma, secondary to uveitis, and it was thought that some such cases might prove unsuited to the operation. The wound showed a tendency to heal up firmly, possibly owing to an excess of albumen in the aqueous. A suggestion was made of partial sclerectomy after failure in any such case. In three other eyes the infiltration, for a time at least, was insufficient to relieve the tension fully, though enough to relieve pain. In one of these cases the deficiency in filtration was probably due to a too shelving incision, entering the anterior chamber at some distance from the angle. The primary incision, at the surface of the sclerotic, need never be more than $2\frac{1}{2}$ mm from the corneal margin, provided the incision were not made too shelving. In some of the Nottingham cases the distance was decidedly under 2 mm. In 15 cases openings had been made unintentionally at the base of the iris, mostly small irido—dialyses. In operating with Bishop Harman's twin scissors the necessary reflexion of the conjunctival flap might influence the result. There was not the same persistent conjunctival oedema in these cases, and the primary keratome incision was no longer visible in most of them. But these operations were all performed within the last six months, and so did not warrant positive statements. Mr. Tomlinson reminded members that he had shown a case that evening in whom the operation just described was performed by Mr. Herbert, with the knife, last June. Tension was still satisfactory. Mr. Nettle-ship asked whether there was a family history of glaucoma, as there was reason to think that when it occurred in more than one generation it came on at an earlier age than in the generation preceding. Mr. Treacher Collins said he had performed the operation 40 times since Mr. Herbert's first description, with the knife, and in the large majority there was a satisfactory reduction of tension. But there had been some failures. In two there was prolapse of iris, and in some there was the formation of irido-dialysis in connection with the primary incision, and in some there was adhesion of the iris to the seat of the wound. He suggested an explanation of the improvement brought about by the operation. Mr. Mayou said he had performed the operation 15 times, and so far as he knew, the failures had been two. In one of them the tension increased to $+3$; it was chronic glaucoma, and iridectomy failed to relieve the tension. The other case was one of apparently ordinary glaucoma, in

which Herbert's operation was done on two occasions, but the tension was not relieved at either of them. Mr. Laws, of Nottingham, said he had done the operation on 45 eyes, and it had not failed to relieve the tension permanently and satisfactorily; a strikingly favorable statement, which he could not make about any other glaucoma operation which he had tried. He had also used it in 5 cases of buphthalmos, and in all of them it had proved satisfactory, though in one, an old-standing case, some intra-ocular haemorrhage occurred, but not enough to destroy the eye. It was soft finally. Mr. Ridley (Leicester) said he had done the operation on 22 occasions, and, with two exceptions, there was considerable improvement in all. Mr. Herbert, in replying, invited the reporting of failures following the operation, so that the technique could be perfected as far as possible.

C. DEVEREUX MARSHALL.

MEETING OF OPHTHALMIC SECTION OF ST. LOUIS MEDICAL SOCIETY.

(May 3, 1911.)

DR. M. H. POST Presiding.

Observation should include the location and limitation of the follicles, the contour of the lashes and lachrymal apparatus, and whether the disease has or has not previously been treated; also tuberculous and scrofulous conditions must be looked for, and the age of the patient considered, since the young respond more readily to treatment than do the old. The diet should be regulated, making it wholesome and nutritious, but not too stimulating. The great difficulty is encountered in prophylactic treatment because of the important social question involved.

Trachoma is essentially a disease of the poorer classes, the exceptions being principally sporadic, and flourishes in communities of unsanitary surroundings, and where there is ignorance and laxity regarding proper living conditions.

Here the services of the school teacher, clergy, and health department can combine most usefully with those of the physician in the work of education.

Treatment of Trachoma.* By Dr. F. P. Parker. In outlining treatment for trachoma, we should not be content with examination of the diseased eye alone, but should thoroughly acquaint ourselves with the social and occupational surroundings of the patient, his habits, mode of living and individuality; in other words, we should treat the patient as a whole.

Patients so affected should be isolated, if possible, or if this cannot be done, they should be provided with separate beds and individual towels. Running water should be used in preference to basins. The effectiveness of proper preventative measures is shown in the statistics of Trachoma in the Prussian Army, where the number of cases was reduced from 3,200 in 100,000 troops in 1867, to 110 cases in 100,000 troops in 1895.

The City of London has a Trachoma School, where children affected with this disease are sent and given an opportunity to learn hygiene along with their other studies while under treatment.

Medicinal treatment can be applied in liquid or powder form, such as drops, douches, compresses, salves, and dusting powders. The drops most frequently employed are caustic, astringent and antiseptic. Not only should the dropper be thoroughly aseptic, but the hands of the physician as well, and great care should be exercised that every part of the conjunctiva be reached by the medicament. Douching will be found of value in cleansing the conjunctiva from mucus and pus, and gives much comfort to the patient, an important point, where, as in this disease, long continued treatment is necessary. Great care should be used in not having the douche too strong.

The medicaments most frequently employed in the douche are boracic acid, bichloride of mercury, and normal saline.

I have found 1 to 10,000 permanganate of potash solution very beneficial. Direct application of the camel's hair brush and cotton applicators have their place: solution of silver nitrate often being used in this way. Considerable skill is required in its proper application, since it is not only necessary to touch the palpebral conjunctiva, but the retro-tarsal folds, as well. It should never be permitted to come in contact with the cornea, but should be flushed with saline solution before restoring the lid to its normal position. Cold compresses are valuable in reducing swelling, congestion and irritation. In case of pannus with secondary iritis, warm or hot applications are preferable. Boracic acid, lead, opium, chamomile, hops and tea leaves have all had their advocates in the form of compresses of various kinds.

Salves are generally introduced on the end of glass rods, into the lower conjunctival fold, the upper lid being pulled over and then well massaged. The salves may contain protargol, ichthyol,

boracic acid, iodoform, xeroform, and copper sulphate, the base, petroleum or lanoline.

The use of radium and the X-Ray is of doubtful value. The surgical treatment of Trachoma consists pre-eminently in the mechanical removal of the Trachoma follicles, and may be accomplished by various methods. The ancients effected this purpose by means of sacrificing the trachomatous lids with fig leaves. Later, this work was performed by using sharp pointed sticks, sharp curette, or the thumb nail. Some contend that each individual follicle should be separately opened and expressed, though according to Fuchs, this is not practicable, since there are always small granules in process of development, which cannot readily be seen and thus escape. The squeezing out of the follicles by means of the Knapp roller forceps, or some of its modifications, seems to be the most popular of the surgical methods in use at the present time. The principal objection to this method is that generally too great pressure is used, and injury done the healthy membrane, thus encouraging scar formation. Excision of the retro-tarsal fold is entirely unnecessary and may be productive of much harm. Tarsectomy is extolled by some for that stage of trachoma where scar formation has begun, or even considerably advanced, and with more or less persistent pannus existing. Galvano-cautery is a dangerous procedure, being difficult of regulation, and promoting scar formation. Electrolysis has not been enthusiastically received. The use of the wire or bristle brush involves too much danger to the conjunctiva. Of all the methods which have come under my observation, the one which has proven most efficacious, and productive of the least injury, when properly done, is the sand paper method of Coover. Number 0, or number 1 sandpaper is used, and it must be ascertained to be pure, since some contains an admixture of powdered glass. The paper is cut into strips $\frac{3}{4}$ inch wide by 3 or 4 inches long, and sterilized by dipping in alcohol and burning it off. Care must be taken not to burn too long, since the sandy surface may be destroyed.

The patient to be put under general anesthesia, the conjunctival sacs thoroughly cleansed; the upper lid grasped with Darier's forceps, is everted, exposing the retro-tarsal fold, a horn spatula protecting the cornea. The entire lid surface to be thoroughly and briskly rubbed, but with barely the weight of the finger, which is

sufficient to destroy the follicles. The surface of the lids after treatment, and the entire conjunctival sacs, are now thoroughly flushed with sterile water or normal saline solution, to wash away all the blood and sand particles which may have become dislodged. Dry gauze compresses are applied and allowed to remain for 4 or 5 hours, after which ice compresses are applied from 24 to 48 hours, and then the use of Prince's copper solution for 4 or 5 weeks, by which time resolution has generally been completed.

Question: Is trachoma increasing in America?

BY DR. ERNST SAXL.

I did not think it necessary or advisable to prepare a formal paper, because the subject that I have before me is a perfectly open question. And I did not want to pass upon or view the question from my own experience but I want to hear from all those present.

Is trachoma on the increase in America? My impression is that it is—I mean trachoma in contra-distinction to the perfectly specific follicular conjunctivitis. I do not consider both as of the same type and character. Since our stringent immigration law, the people infected with trachoma are not admitted until they have been treated and cured of this infection. Some of them have gotten by the officials, by using adrenalin or similar products that will relieve the swelling and redness of the lid, and the immigration authorities were deceived. I have been in charge of the eye clinic of the city, where quite a number of day laborers from the railroad camps and crowded boarding houses are seen. Recently there were considerably more trachoma cases than were in the habit of coming, so that we saw in the clinic ten cases in ten weeks, that many cases coming under the observation of one man.

If the health authorities have no control of the laboring camps and crowded boarding houses I think trachoma is necessarily bound to spread. I had the opportunity of seeing, two years ago, a case that came from Ilasco, and I found not less than twelve cases that had become trachomatous within twelve months. Ten of these cases disappeared; as to what became of them, whether they came into the hands of some competent man who took steps to cure them, or whether they spread the disease into the country, I do not know.

In the last epidemic in Belgium 4,000 soldiers were infected, but I do not think we will ever have an epidemic of that kind again. It is our duty now to look out for these cases so that there may be no danger of infecting others. I think when trachoma cases are seen they should be referred to the health department. The camps for infectious diseases near the Female hospital could be utilized to keep these patients under observation. In this way we could keep them from spreading the disease. I do not know that I can add anything at present except that I would like to ask some of those that have large clinics to give us information as to whether they see more trachoma cases than formerly. I wish to state that of the number admitted to the Missouri School for the Blind, ten per cent are due to trachoma.

The School Board is a help in this direction. They will not permit a child with inflammation of the eyes to return to school without a certificate from a competent oculist. This, however, refers only to cases that have been sent home to their parents by the physician making the rounds of the school.

People should not allow a child to return to school until this necessary formality has been complied with. I think the United States government is not strict enough; there are few places where a regular examination of the troops is made. Eternal watchfulness is the price that we pay for safety.

The only way we can handle this problem is (1) to keep track of all of our cases of trachoma. (2) That we try to get from every physician who has a chance to see eye diseases a report of the cases, and at the end of another five years see whether the number of cases has increased or decreased. (3) The state and city health departments' attention should be called to the existing conditions of this disease and its highly contagious character.

DISCUSSION.

Dr. John Green, Jr.: I think that what Dr. Saxl has said is probably well founded. In southern Illinois, southern Missouri and northern Arkansas trachoma is endemic.

Dr. Stucky, of Lexington, Ky., recently made a visit to the mountain regions of that state and found many of the poor whites infected; in some cases whole families had the disease, and their vision was impaired to such an extent that they could no longer read. And yet these people regarded this condition as "sore eyes," and of no seriousness.

During my term of service in the City hospital, two patients came under my observation that were blind from trachoma.

I have been recently looking up the relation of immigration to trachoma. It appears that the immigration officials are thoroughly alive to the menace of this disease and have issued rigorous instructions to inspectors to exclude all immigrants with trachoma. At present I believe the government regulations are sufficient to exclude all but a few immigrants with this disease. Some enter the country by way of Canada, where the officials are not so strict as in this country.

Dr. Jennings: It seems to me that from the increased number of physicians who are doing eye work all over the country, about fifty to one, as compared with twenty years ago, that they ought to be able to treat a great many more cases and keep the disease under control. In Missouri in the farming districts many persons are suffering from trachoma. They are ignorant on sanitary matters and all wash in the same bucket and all wipe on the same dirty towel. It seems to me we should take some steps to educate the people on these matters. Trachoma is not contagious in the degree that some other diseases are, and this spread can be prevented if people will only use sanitary precautions.

Dr. Gross: The question of the spread of trachoma has been studied by some men in Europe. In quite an extensive article in the *Zeitschrift fuer Augenheilkunde*, which appeared within the last two years, the author states that the number of trachoma cases has increased. In the same article is a map in which he gives the relative frequency of trachoma as compared with what it was some ten years ago. He is thoroughly convinced that trachoma has spread very rapidly, and cases are becoming more numerous in Austria and that part of Europe. A large number of the cases we see here are among foreigners and people who come in contact with foreigners. In spite of the measures which the immigration officials take to keep them out we see cases every day in the Washington University Clinic. Many of them do not know a word of English, and must recently have managed to escape the vigilance of the officials. Under these circumstances I do not see how we can keep trachoma from spreading here with these foreigners coming in with fresh cases. Nor do I see how the government can do anything in regard to taking care of those who have the disease. The government finds it difficult to take

care of such a disease as tuberculosis, which is a very serious economic problem. I do not see how anything can be done except to educate the laity, and that is rather difficult, because so many of these patients are foreigners and people of the lower classes who come in contact with them.

Dr. Post: In my private practice trachoma cases are very rare; latterly I have seen very few. One interesting thing I have noticed in my connection of twenty years with the Blind school is that there are children in the institution who have trachoma, and children who are blind whose conjunctivæ are normal; and in all these years I have not seen any children contracting trachoma from those who have it. Of course precautions are taken, but in an institution where the children are blind, it must be difficult to carry out these precautions. But the pupils do not seem to contract the disease and it has not spread in that institution.

The term "blind asylum" has been used; these are distinctly schools, not asylums. We used to have trouble in getting children into our Blind school, which was at one time designated as the Blind asylum, and parents objected to sending their children to an asylum. We should do all we can to educate the laity as to the necessity of protecting their eyes against contagious diseases.

Among the educated classes this is pretty generally understood; we find almost all of them are awake to the danger of using the common towel or wash basin.

Trachoma is a danger to all of us. Some of the cases I have seen are among people who would consider that they had been very careful, and would be much surprised at the suggestion of any neglect of care on their part.

Dr. Parker (closing): In regard to the treatment with sand paper, I have seen a number of cases treated this way and there was no scar formation; and while I do not know that it will cure all cases, I will say that if properly done we have less scar formation than by any other method I have ever seen employed. I have seen 130 cases treated this way, and so far the results are very satisfactory.

J. G. CALHOUN, Section Editor.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of April 15, 1911.

DR. EDWARD JACKSON, Presiding.

Diabetic Cataract.

Dr. D. A. Strickler presented a lady of 63 years of age who gave a history of diabetes mellitus of at least eleven years' standing. In May, 1900, had been refracted O. D. $+ 1.75 = + 1.00$ cyl ax 130° V = 20/20; O. S. $+ 1.75 = + 1.00$ cyl ax 45° V = 20/20. Dr. Jackson saw the patient in June, 1904, and refracted her. On March 17, 1911, refraction showed O. D. $+ 0.50$ cyl ax 135° V = 20/50; O. S. $+ 1.00$ V = 20/50; there being a marked diminution of the hyperopia. The lens shows opaque striae, and there is a peculiar play of shadows in the lens substance indicating undoubted nutritional changes. The urine continues to be heavily laden with sugar. Patient is dieting.

Dr. Strickler's query was: Does the present disturbance with diminished vision presage a rapidly forming cataract?

Discussion: Dr. Jackson has seen this patient seven years ago. At that time "some cortical opacity with faint striae, largely in the posterior cortex" was noted. The striae are about the same at the present time as then. The correcting lenses, R. $+ 2$. Sph. = $+ 0.75$ cyl. axis 135° and L. $+ 2$. Sph. then gave vision of 4/4 partly in each eye. Dr. Bull's statistics on cataract operation did not indicate that operation in diabetic cataracts were contra indicated. The per cent of successful results was not much less than in senile cataract. Many elderly people carry partial cataracts that show little change over long periods. Nine years ago he had seen a woman, then aged 65, who had been told several years before that she had a cataract. At that time there was general haziness of the lens with a few spicules or striae of definite opacity. With correcting lenses her vision was then 4/8 mostly and 4/6 partly. Within the last week this patient had been seen again. There were still fine spicules and dots of definite opacity; but the haziness of other parts of the lens was gone; and with correcting lenses, vision was 4/6 partly. The convex sphericals required, however, had risen from $+ 1.50$ to $+ 2.50$ and from $+ 0.50$ to $+ 1.50$ D. There was no diabetes in this case.

Dr. Friedman did not think the diabetic cataract would mature.

Dr. Sedwick suggested the use of trypsin.

Dr. Black was of the opinion that there had been a rapid

swelling of the lens, and in view of that, thought the prognosis bad.

Dr. Hess reported operation on one case with unsatisfactory results.

Dr. Ringle would endeavor to control the degree of glycosuria in the hope that the condition would be retarded.

Dr. Bane thought a great deal depended on vigorous constitutional treatment.

Dr. MaGruder was impressed by the arrangement of the opaque striae; did not have a stellate appearance; looked more like the dried wing of a fly.

Multiple Cysts of the Caruncle.

Dr. H. R. Stilwill presented a child six months old with several small cysts in the region of the caruncle. They were of two or three weeks' standing and were accompanied by some conjunctivitis. The conjunctival trouble had cleared up under argyrol, but the cysts persisted. They appeared to contain a clear serous fluid.

Discussion.—Dr. Libby had had a similar case in which they appeared suddenly and disappeared in the same manner, not requiring operative interference. If these persisted, would incise and apply cautery.

Dr. McGruder reported a case in a child in which there was a spontaneous cure. He thought they would disappear in this case.

Acute Glaucoma Relieved by Injections of Sodium Citrate.

Dr. W. A. Sedwick reported a case of a man of 57 who was struck in L. E. with a stick when 14 years of age, and traumatic cataract resulted. Eye had never given him any trouble until last December 17, 1910. Patient was suffering from acute glaucoma with the characteristic symptoms. Attack had come on suddenly and was accompanied by almost continuous vomiting. $T + 2$. Miotics were instilled, but gave no relief and iridectomy was made. Patient felt more comfortable after the operation and T diminished. Later in the same day pain returned and continued. Following day a paracentesis was made, followed by hot applications. Twenty-four hours later pain became so severe patient demanded enucleation of the eye. Conditions at this time: hazy cornea, shallow anterior chamber: $T + 2$. Under cocaine anesthesia injected subconjunctively 12 minims of a 4.05% solution Sodium Citrate, as recommended by Drs. Thomas and Fischer, of

Oakland, California, on the theory that this salt reduces the affinity of the tissue colloids for water, which in glaucoma has been increased through chemical changes in the tissues themselves. The injection was followed by intense pain, which lasted about ten minutes. Cocaine and hot applications failed to relieve it. In one-half hour eye felt quite comfortable and tension was found to be markedly diminished. Taking the tension, however, gave considerable pain. Six days after the injection, tension was normal, cornea clear, and anterior chamber of normal depth. Covering a period of two months patient had four subacute attacks, each one of which was marked by intense pain and increased tension, the latter at one time rising to 3. Injections of 12 minims of 4.05% solution sodium citrate were given each time and pain was always controlled, and tension fell in a few hours. Nearly two months has elapsed since last attack, and at present time patient has no pain, tension is normal and all congestion has disappeared. Eight cases in which this treatment has been used have been reported: 5 by Thomas and Fischer, of Oakland, California, and 3 by Heller, of New York. Uniform good results were obtained in each case. The injections seem very painful—at least this patient would not submit to any more except under general anesthesia (Somnoform).

Discussion.—Dr. Black suggested quinine and urea hydrochloride as a local anesthetic. He had never had experience with it himself, and was not familiar with its effect on the eye.

Dr. Sisson had seen the case with Dr. Sedwick several times, and had been especially impressed with the marked diminution of tension which followed each injection. Thought the patient a very nervous type, and taking this into consideration, was of the opinion that other patients might not suffer so much from the injection.

Dr. Strader reported that the patient with Haemorrhagic Neuroretinitis, which he presented to the Society at the February meeting, had since died. Diagnosis: Cerebral syphilis.

Demonstration of the Trachoma Bodies.

Dr. E. O. Sisson, through the courtesy of Dr. Hanford McKee of Montreal, demonstrated the trachoma bodies in a smear preparation and reviewed Dr. McKee's Noguchis exhaustive researches on the subject.

Dr. Jackson spoke of the work of the various investigators

and thought the significance of the granules composing the so-called trachoma bodies was far from being settled.

Instruction in Ophthalmology.

Dr. Jackson spoke at length on the need of additional instruction in ophthalmology in our Medical Schools and Universities, and referred to the course recently adopted by the University of Oxford, England. He presented the following resolution, which was unanimously adopted by the Society:

WHEREAS, A thorough preparation for Ophthalmic Practice requires the study of certain branches not demanded of the candidate for the degree of Doctor of Medicine; and,

WHEREAS, No complete, systematic course of instruction in Ophthalmology is now offered in this country;

RESOLVED: That the Colorado Ophthalmological Society request the Dean of the Medical Department, the President of the University, and the Regents of the University of Colorado to establish in the Medical Department of the University a course in Ophthalmology, requiring: graduation in Medicine, study of physical and physiologic optics, and one year of post-graduate work in Ophthalmic Science and Practice.

The following officers were elected for the ensuing year:

Secretary: Dr. Ellet O. Sisson, Denver;

Treasurer: Dr. Melville Black, Denver.

Chairman Executive Committee: Dr. E. R. Neeper, Colorado Springs.

ELLET O. SISSON, Secretary.

Correspondence

CONCERNING MAJOR SMITH OF JULLUNDER

To the Editors of THE OPHTHALMIC RECORD:—

Indulgence in personalities in what should be purely a professional matter is always to be deplored. In an article in the April number of THE OPHTHALMIC RECORD Col. Smith, in order to explain some unfortunate results following his method of extraction, attributed to me an utterly unwarranted, personal ill feeling.

It is quite true that I went to Jullunder unexpectedly and without prior correspondence. It is equally true that Major Smith made me welcome and, what was more than I had any right to expect, allowed me to operate on some twenty-five cases under his direction, with all of which I was very pleased, but I did not understand that I would be expected to misrepresent facts, in favor of his method, after my return home.

At a meeting of the Washington State Medical Society, Dr. Würdemann read a paper on the intracapsular extraction of cataract. Having so recently visited Jullunder I was expected to discuss the paper. One of three courses was open to me; I could refuse to tell what I had seen, I could politely prevaricate, or I could tell what I believed to be the truth. Not being one of those who "bend the cringing knee that thrift may follow fawning," I did the last.

That Major Kilkelly would degrade himself to the extent of showing cases other than those that Major Smith had operated upon is not conceivable. Neither is it to be inferred that all of Col. Smith's extractions turn out as unfortunately as did the Bombay cases. It simply shows that a rather high percentage of Col. Smith's cases do have unfortunate accidents and I am quite sure the percentage of them is higher than Col. Smith himself is aware. I doubt very much if any man who has visited Jullunder believes that Col. Smith himself knows the extent of his unfortunate cases. As an example I saw him extract, by the intracapsular method, a lens from a myopic youth when, according to his own admission, he did not know in advance the condition of the vitreous or the amount of the myopia. That it was a highly risky thing to do was proved by the perspiration which came to the operator's brow while he was exerting what would have been apparent to the merest novice as unwarrantable pressure.

As to the facilities for examining cases, of which he speaks,

it is true that *every facility for seeing operations* was granted, but I was never invited to see cases *after* operation. However, on two occasions I reluctantly and with a feeling of intrusion, made morning rounds with his native assistant. I was not shown as many cases as had been operated on and even these were exhibited in small, semi-dark rooms without any of the artificial aids to examination.

During my ten days stay I saw no case examined with an ophthalmoscope or by lateral illumination; neither did I see one case whose refraction had been worked out. My inference was that the average patient (peasant) left the hospital at the end of about a week without being thus examined and returned to the country from which most of the patients come. The artisans no doubt remained, or returned for glasses, but if the refraction of any considerable number of the patients operated on were subsequently determined, it is quite likely I would have seen at least one of them during my ten days' stay. On one occasion a patient, who had been previously operated on by Major Smith, appeared at the clinic, presenting clear pupillary areas. Without any examination other than that he made at the doorway he unhesitatingly asserted that this patient would have 6/5 vision! By what occult power any surgeon can say, after mere inspection and without further examination, what vision an eye possesses is beyond my comprehension.

I have no doubt Col. Smith regrets greatly that he permitted me to operate on some twenty-five cases, but his regret is no greater than mine at having visited Jullunder. I was not disgruntled, as he says: on the contrary, I felt greatly obliged for his hospitality, and left Jullunder in time to have some three days in Bombay before my ship sailed.

These unfortunate bickerings have no real value in determining the status of the operation. The truth of the matter is the intracapsular operation is not done by the men for whom we have the greatest respect as surgeons. For Col. Smith to intimate that there is or was a conspiracy in London against him is ridiculous. Furthermore, I do not believe that Doctors Greene and Vail will be doing this operation on *private patients* two years hence, notwithstanding all that they have said about it since their return from Jullunder.

A prudent person must inevitably agree with Dr. Risley that "a man with Smith's opportunity and dexterity would get good results by a number of different methods." But the contention

that the operation is suitable for other cases than double immature cataract where the patient can not afford to wait for maturity, will not, I am sure, find favor with the men of best judgment.

In conclusion I wish to pay my highest respects to Col. Smith *as an operator*. I nevertheless believe that he is simply stubborn in his insistence upon the merits of intracapsular extraction as a routine measure. The situation was rather neatly expressed when Mr. Treacher Collins said to me, "you need that posterior capsule to support the vitreous."

NEVIN D. PONTIUS.

Cobb building, Seattle, Wash.

Book Reviews

MERCK'S MANUAL OF THE MATERIA MEDICA.

(Fourth Edition.)

A ready Reference Pocket Book for the Physician and Surgeon. Containing a comprehensive list of Chemicals and Drugs—not confined to "Merck's"—with their synonyms, solubilities, incompatibilities, antidotes, etc.; a table of Therapeutic Indications, with interspersed paragraphs on Bedside Diagnosis, and a collection of Prescription Formulas, beginning under the indication "Abortion" and ending with "Yellow Fever": a Classification of Medicaments; and Miscellany, comprising Poisoning and Its Treatment; and an extensive Dose Table; a chapter on Urinalysis, and various tables, etc. (Merck & Co., 45 Park Place, New York. 1911. 493 pages. Sent on receipt of forwarding charges of 10 cents, in stamps, to physicians, or to students enrolled in any College of Medicine, in United States.)

News Items.

**PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK BRAWLEY, CHICAGO SAVINGS BANK BUILDING, STATE
AND MADISON STREETS, CHICAGO.**

Dr. Willis O. Nance has been elected alderman for the Seventh ward of Chicago.

Dr. Alfred Murray has been elected secretary of the Physicians' Club of Chicago.

Dr. Herman D. Andrews of Buffalo, N. Y., was married May 5th to Mrs. Annie Lake Bird.

Dr. John A. Winter has been appointed assistant in the eye, ear and throat department of the St. Louis County Tuberculosis Clinic.

Dr. Harry S. Gradle has announced his intention to continue the practice in which he was associated with his father, the late Dr. Henry Gradle.

Drs. Monte Griffith, Francis M. Chisholm and Thomas A. Poole have formed an association for the special practice of eye, ear, nose and throat diseases.

Dr. Wendell Reber has been appointed one of the visiting ophthalmologists to the Philadelphia General Hospital by Director of Public Health Joseph Neff.

Drs. Mark D. Stevenson and E. M. Weaver of Akron, Ohio, have recently moved to new quarters where they will have their private offices and hospital together.

The medical library of the late Henry Gradle of Chicago has been presented by Mrs. Gradle to the Crerar Library, to be known as the Henry Gradle Memorial Collection.

Dr. Edward W. Fox of Trinidad, Colo., died at his home April 30, aged 32. Dr. Fox was well known as an ophthalmologist and was president of Las Animas County Medical Society.

Dr. Derrick Vail and Dr. Frederick Lamb of Cincinnati have entered into a partnership arrangement for the practice of their specialty and will be located at 24 Eighth avenue, Cincinnati.

Dr. Henry W. Wandless, lecturer in ophthalmology, New York University and Bellevue Hospital Medical College, has been elected president of the Nu Sigma Nu Alumni Association of New York.

Dr. Wm. Campbell Posey of Philadelphia has been elected consulting ophthalmologist to the Hospital for the Chronic Insane of Pennsylvania, to succeed Dr. C. A. Oliver, who died recently.

Dr. Henry L. Shaw, a pioneer oculist and aurist of Boston, formerly surgeon to the Massachusetts Charitable Eye and Ear Infirmary and later on the consulting staff, died April 2d, at his home in Boston, age 73.

New appointments for the Eye, Ear, Nose and Throat Hospital of New Orleans are: Dr. Charles Chassaignac, chairman of the house committee, and Dr. Louis G. Le Benf, a member of the finance committee.

Dr. John A. Donovan of Butte, Mont., is pre-eminent in other fields than ophthalmology. He is a member of the victorious Rocky Mountain Rifle Club team, which recently won the Indoor Rifle Championship of America.

Dr. Homer E. Smith of Norwich, N. Y., has won the Lucien Howe prize for advance in ophthalmic surgery. His essay had for its title, "An Improved Method for the Extraction of the Immature Cataractous Lens."

At a recent meeting of the College of Physicians of Philadelphia, portraits of Dr. George Couvier Harland and Dr. James Tyson were presented to the college. Dr. Geo. E. de Schweinitz, as president of the college, made the speech of acceptance.

Dr. Harry J. Dean of Muscatine, Iowa, died recently in that city, aged 42. Dr. Dean was a member of the American Medical

Association and the American Academy of Ophthalmology and Oto-Laryngology and attending surgeon to the Hershey Memorial Hospital.

Dr. Casey A. Wood, Chicago, has presented a large collection of rare editions dealing with diseases of the eye to McGill University Medical Library.

Dr. W. G. Byers of Montreal has also presented a large reprint collection to the library.

An amusing tale of the explosion of a celluloid artificial eye was recently seen in one of the Chicago newspapers. Various supposed authorities denied the existence of celluloid eyes, which, however, do exist, but it is not possible for one to explode while in the orbit, the danger from celluloid being much exaggerated.

Prof. Ernst Fuchs will visit this country as the guest of the American Ophthalmological Society. We are sure that this famous teacher's many pupils and friends will give him a hearty welcome. There is probably no European master of ophthalmic surgery who is so universally known as the head of the ophthalmic department in the University of Vienna.

Other countries than our own cannot understand why the American public will permit the licensing of so-called optometrists entirely devoid of medical training. An article appeared in the *Medical Press* of Canada, April 5, 1911, heartily approving the work of education undertaken by the Ophthalmological Section of the American Medical Association to prevent the passage of such dangerous measures.

At a meeting held in Philadelphia Polyclinic on Friday, May 12th, at 4 p. m., for the purpose of organizing the Philadelphia Polyclinic Ophthalmic Society. Dr. Wendell Reber was elected president and Dr. Joseph L. McCool secretary; executive committee, Drs. William Campbell Posey, William M. Sweet and William Zentmayer.

The first meeting of the society will be held on Thursday, October 12th, at 3:30 p. m., and thereafter on the second Thursday

of each month, with the exception of June, July, August and September.

The Toronto Academy of Medicine at its recent meeting elected Dr. Richard A. Reeve, vice-president, and Dr. Charles Trow, chairman, of the section of ophthalmology.

At the recent meeting of the Canadian Medical Association in Montreal, the following papers on the eye were presented:

"A Case of Foreign Body in the Orbit: Removal After Two Years," S. H. McKee and H. S. Birkett, Montreal.

"An Organism of the Conjunctiva, Resembling the Morax-Axenfeld Diplobacillus," S. H. McKee, Montreal.

"Glioma of the Retina, with Pathological Preparations," C. C. McCullough, Fort William.

"Some Tubercular Eye-Lesions," J. W. Stirling, Montreal.

(a) "Possibilities of Infecting Intra-Ocular Operations by Means of the Hair."

(b) "Inefficacy on Intra-Ocular Injection of Iodoform in Tubercular Iritis," F. T. Tooke, Montreal.

"Cases of Lamellar Cataract Successfully Operated Upon by Discission Late in Life," W. G. Byers, Montreal.

"The Operative Treatment of Glaucoma, with Special Reference to the Lagrange Method," Casey A. Wood, Chicago.

To the Editor: It is seldom that the publisher of one of the popular magazines comes as near placing himself in the position of being accused of blackmail as did the publisher of *Good Housekeeping* in its February number. Beneath the heading of the article, "Why Our Glasses Don't Fit," appears a statement which at once leads the reader to suspect that the editor had some misgivings as to the advisability of publishing the article. He must have succeeded in getting the "endorsement of two distinguished oculists," for he says so; and obtaining the distinguished endorsements, he proceeds to publish the article, which consists of an assumed case of eye-strain and the trials and tribulations of a patient—the author—and of an oculist, who, with the patience of a Job, as the history relates, makes twenty odd separate and distinct examinations and prescribings of faulty lenses, at which juncture the oculist discovers his trial lenses, and incidentally nearly all other trial lenses in this country and Canada, to be faulty: and all because neither he nor his brother oculists, as

well as various opticians, manufacturing and otherwise, are testing out their trial cases and prescribed lenses by a certain apparatus which "costs sixty dollars," "possessed by not over fifty opticians and oculists out of 28,000 in the country!" And thereby hangs a tale.

The manufacturer must needs make some sales. The apparatus is not selling well, at least the author makes that inference very strong in the article. Probably he needs the money, and hence this advice to the public: "You can make your oculist a better one by asking him some questions which will worry him: 'Have you yourself tested your trial lenses? Have you a modern axis finder to enable you to test them? And to test also the centering of these lenses I have bought from the optician? Are you sure the man you are sending me to has a machine? If he hasn't why don't you make him get one?'" And now, the manufacturer having had the benefit of this most excellent advertisement, published in the body of a popular magazine in the form of a most readable and interesting article—and it is interesting—follows up the advertisement by sending out broadcast over the country reprints of the same: "From *Good Housekeeping* magazine by permission," accompanied by a picture of the apparatus, and a letter stating among other things that this is "the instrument to which Prof. Tassin,"—the author of the article—"alludes."

W. H. DUDLEY, Los Angeles, Cal.

Journal A. M. A.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

VOL. XX

CHICAGO, JULY, 1911

NO. 7, NEW SERIES

OCULAR FINDINGS IN HEREDITARY SYPHILIS.

BY EDWARD STIEREN, M. D.,

PITTSBURGH, PA.

Hereditary syphilis is the same disease as acquired syphilis, but its lesions are modified by the undeveloped condition of the organism attacked as well as by the mode of infection. The fetus is not infected, as in acquired syphilis, by a chancre, hence there is no primary lesion. The secondary infectious lesions, mucous patches, skin eruptions, enlarged glands, etc., are usually skipped, or, it may be, overlooked, and the so-called delayed hereditary syphilis is, according to Keys, always tertiary in type.

It has been estimated half 50% of syphilitic fetuses are still born. Of the remaining half, at least 80% develop ocular lesions, and I am of the same opinion with Keys that any attempt at a classification into early hereditary syphilis and late hereditary syphilis is but an artificial and arbitrary one. The so-called late manifestations may be present in the new-born; for instance interstitial keratitis, and I have observed choroidal alterations develop as late as the 25th year. Hence I consider an anatomical, rather than a period classification more desirable.

Affections of the lids in hereditary syphilis are rare. Simon and Stern have each reported a case of tarsitis with enlarged preauricular and cervical glands in infants of syphilitic parentage, which respond promptly to injections. Daeryocystitis is not uncommonly present as a result of syphilitic nasal catarrh and necrosis.

I have recently observed a case of blepharitis with alopecia of the lashes and partial alopecia of the eyebrows in a girl possessing the peripheral choroidal lesions seen only in hereditary syphilis.

(Read before the University of Pittsburgh Medical Society,
June 9, 1911.)

Cornea.

Interstitial or parenchymatous keratitis occurs usually between the ages of eight and fifteen, although it may be present before birth as noted by Parinaud or as late as the 36th year according to Huguenin. It is the most frequent ocular lesion in hereditary lues, bearing a proportion of about 60% to all other manifestations. It is, however, not pathognomonic of congenital syphilis having been noted in the course of acquired syphilis and not seldom may be traced to tuberculosis, rheumatism, gout, influenza and uterine affections.

The affection is characterized anatomically by a leucocyte infiltration into the substance of the cornea and may be studied in three stages:

1st. *Period of Infiltration.* Beginning insidiously without pain and with little inflammatory reaction, a diffuse haziness occurs, usually in the center of the cornea, less frequently at its periphery. Oblique illumination reveals a finely dotted grayish infiltrate throughout the entire thickness of the corneal stroma.

The corneal epithelium covering this area loses its glistening appearance and resembles a pane of glass upon which one has breathed; this appearance is due to roughening of the superficial epithelium but is never followed by ulceration. In a day or two the dimness becomes more marked, other areas develop, until finally the entire cornea becomes opaque, denser in some parts than others until it becomes difficult, sometimes even impossible, to distinguish the iris and pupil. Of variable degree, according to the intensity of the infiltration, a vascular injection appears surrounding the cornea. It may be so slight as to easily escape detection or become intensely brick red within twenty-four hours. This affection is almost always bilateral, but both eyes are very seldom attacked simultaneously. Hence the pericorneal injections may be detected in the sound eye before the infiltration of leucocytes has progressed to a noticeable degree and is an indication for prompt remedial measures.

Functional disturbance is in direct proportion to the degree of alteration in the transparency of the cornea. Decrease in visual acuity, slight and insignificant in the beginning, may be the first symptom to attract attention. Photophobia and blepharospasm develop later followed by increasing dimness of vision as the corneal stroma becomes more and more infiltrated. Pain both in the eye itself and in the temple and forehead is singularly absent, due no doubt to the diminished sensibility of the corneal nerve endings.

2d. *Period of vascularization* of the cornea. This appears about three weeks after the onset and usually about the time when the infiltration is complete. The newly forming blood vessels arise from the deep vessels of the sclerotic and extend in the form of a brush to the deep layers of the cornea. Progressing towards the center from all sides they finally invade the whole membrane. When the vascularization is complete the cornea assumes a cherry red color which may even resemble a hemorrhage into its stroma. Examination with the loup will dispel this resemblance, however, as the thick and close net of capillaries can be plainly seen. This phenomenon constitutes the first step in resorption. It is of good omen and should not cause anxiety, establishing the principle that the greater the vascularization the greater the absorption of infiltrate.

3d. *Period of Resolution.* When the vascularization is complete and after a variable duration, never less than six weeks, the affection enters into the period of resolution. The vessels disappear and the cornea little by little clears up, sometimes completely. This, however, is a rare exception. We do not usually expect a complete restoration to transparency: a very good result in an emmetropic eye would be visual acuity of 6/10.

Sometimes the resorption process drags or stops, taxing our patience and therapeutic ingenuity, and in spite of every known agent, both local and constitutional, there remain thick leucomata which, like Lady Macbeth's damned spot "will not out."

This period has a very variable duration. It never lasts less than six weeks and may persist for six months.

There are several important complications to consider before dismissing this affection, chief among these being Irido-choroiditis. DeLaperson considers the corneal infiltration as being but secondary to a chorioiditis in all cases, a dogma which should not be generally accepted. That iritis and irido-choroiditis frequently accompany an interstitial keratitis we all know, but it has not been uncommon in my experience to witness cases in which the pupil has dilated promptly under atropin, remaining so and after the cornea had cleared up sufficiently to permit an ophthalmoscopic examination to find no evidence in the choroid of a pre-existing inflammation. We do have examples of severe iritis and cyclitis in conjunction with interstitial keratitis in which case pain (as well as ciliary tenderness) becomes a prominent feature. It is in these cases that atropin seemingly has no effect upon the pupil, the eye

ball becomes soft, and after many months of intermittent inflammatory attacks may result in a blind, useless eye, sometimes in pthisis bulbi.

Opacities of the lens may be found after the cornea has cleared up and are the consequence of iritic adhesions or exudates which have formed in the pupil and given rise to anterior capsular cataract.

Glaucoma may develop during the course of an interstitial keratitis by a blocking of the filtration angle by plastic material.

Bullous keratitis occurs occasionally in the first stage of this affection.

Keratomalacia has been observed in young syphilitics, Peltetsohn having reported two cases in infants under one year of age, who, however, did not present the usual bodily prostration and who made a more or less complete recovery of the ocular lesion under mercurial inunctions.

Affections of the Uveal Tract.

Iritis. Although comparatively frequent in acquired syphilis, inflammation of the iris in inherited lues is rather uncommon. Hutchinson appears to have been the first to call attention to it for as early as 1863 he reported 23 cases observed in subjects whose ages varied from six weeks to two months.

An attack of iritis may be present during intra-uterine life, but it is rare to observe it in the newly born, perhaps for the reason that the inflammation, which is never intense, may pass unnoticed at this age. As the child grows older and keeps its eyes open longer and at more frequent intervals, it is observed oftener. It occurs also later in life, from ten to twenty years of age and usually affects but one eye. In its habitual form, hereditary specific iritis differs from acquired iritis by its slight inflammatory reaction and by its relative indolence. But it has a marked tendency to give rise to posterior synechiæ, and pupillary obstruction by abundant plastic exudate is frequent. Like the acquired type it presents different aspects:

1. *Serous Form.* This is rare and corresponds to the aqua-capsulitis of the ancients, being marked by numerous light opacities in the anterior part of the vitreous and on the posterior surface of the cornea. These opacities arise in the aqueous and are the direct result of the iritis, being flocculent particles of inflammatory exudate. Intra-ocular tension is apt to be raised and atropin must be used with caution. Fortunately synechiæ do not readily form in this type.

2. *Acute Form.* This is also rare. It is characterized by an active injection of the conjunctiva, ciliary pain and photophobia. The process is usually short if local and constitutional treatment be instituted early.

3. *Gummatous Form.* This is more common than the two preceding types. The gumma may break down and cause a hypopyon or terminate by resolution. In either instance there remains a localized spot of atrophy and change in coloration of the iris towards which the pupil will not readily dilate. Posterior synechiae are common sequelae.

4. *A form mixed with keratitis* occurs occasionally, as has been noted, the corneal cloudiness following the acute inflammatory attack on the iris.

Retino-choroidal Alterations. Choroiditis rarely presents itself in an acute form in hereditary syphilis. It is nearly always of pre-natal origin and viewed with the ophthalmoscope consists of cicatricial and atrophic lesions. These lesions, first described by Bader and Hutchinson, are now generally recognized as clinical entities.

Huguenin, whose classification is the best, describes them as follows:

Type One. Light form. This is a scattering of little reddish-yellow spots measuring from $1/15$ to $1/20$ papilla diameter, dotted at the same time with little pigmentary points and usually limited to the periphery. It being extremely hard to view this region with the ophthalmoscope in young subjects these lesions are often overlooked, but there is no doubt that they can be observed in a number of cases if search were made for them. In the *more pronounced cases* the lesions are larger and approach the macula and papilla. The latter presents a whitish tinge, the nerve being slightly atrophic. There exists a slight contraction of the visual field and visual acuity is never quite normal. The affection is bilateral but as in the light form the prognosis is good as the lesions show little tendency to progress.

Type Two is recognized by the presence of pigmented foci, isolated or conglomerated, located by preference in the peripheral parts. Much more voluminous than in the previous type these areas may be the size of $1/4$ or even $1/2$ that of the papilla: by uniting they sometimes form veritable patches. Accompanying these pigmented areas are found round reddish-yellow foci, less abundant than the pigmentary spots. These lesions likewise are especially

marked at the periphery but may extend more or less towards the papilla and macula.

It is rare to find other alterations in the choroid, and the vitreous usually is not affected. Light sense and visual acuity are distinctly normal and the field is contracted only at the points corresponding to the retino-choroidal alterations.

This form is very often found after the subsidence of an interstitial keratitis and may be considered one of the sequelae of it, but it has been observed to precede it. The prognosis here also is favorable, the lesions almost invariably remaining stationary. If vision is below normal it is due to a cloudy cornea or to alterations in the media.

Type Three. The lesions in this form consist of round or oval, light yellow areas with masses of pigment upon their borders. They are especially well developed at the periphery but often extend toward the equator, even to the posterior pole of the eye, entailing noticeable disturbance of vision and marked shrinking of the field. The prognosis is less favorable than in the preceding types, the lesions sometimes showing a tendency to creep backwards.

Type four is the gravest of all. Here the lesions are essentially characterized by the disappearance of pigment in certain areas while in other fields, particularly around the papilla and in the macular region, an enormous pigmentary hyperplasia develops. The periphery singularly is comparatively free from pigment. Accompanying these pigmentary accumulations, which by their coalescence form the most diversified figures, are round, light yellow foci that may measure from one-half to a full papilla diameter and which show no tendency to coalesce. The remaining fundus presents a grayish slate colored tinge, much resembling the fundus of a negro.

The papillae are pale, the retinal vessels are contracted, but strange as it may seem, it is rare for the affection to end in optic atrophy. It is usually bilateral, but may be unilateral.

These four types are characteristic of hereditary syphilitic infection of the deep membranes of the eye. In comparison it may be well to briefly consider at this time that particular affection of the retina known as *Pigmentary Retinitis*. This disease, always bilateral, is characterized by a progressive sclerosis of the retina, the process extending from the periphery towards the posterior pole but marked at first at the periphery. It expresses itself by little pigmentary blotches having the aspect of bone corpuscles which

after having reached the macular-papillary region finally become complicated with optic atrophy. Thus, failure in visual acuity, insignificant at first and limited only to the peripheral retina, becomes more and more marked, as does also hemeralopia, finally ending in blindness. In the types of hereditary syphilitic alterations of the fundus previously considered, hemeralopia may be present but never as marked as in pigmentary retinitis.

While blindness is the usual termination of this affection, it progresses but slowly and it is only towards the age of fifty or sixty years that the retinal atrophy is complete. Leber has described a pigmentary retinitis without pigment, in which the diagnostic points are the hemeralopia, the shrinking of the fields and the orange yellow tinge of the papilla, which finally ends in optic atrophy.

It cannot be maintained that pigmentary retinitis is syphilitic in origin. True it has often been observed in congenital syphilitics, but it is also known as a hereditary condition, descending through three or four generations, and in rachitic subjects. Intermarriage of relations seems also to favor its development in the offspring. Suffice it to say that it is always of intrauterine origin and syphilis must be admitted one of the possible causes of its occurrence.

Optic neuritis formerly was considered a rare occurrence in congenital syphilis. Recently the researches of Heine, Dadt, Spiro, and Japha emphasize the frequency of optic neuritis in luetic infants. It has been the custom in Neumann's clinic in Berlin for a number of years to examine the eye-grounds of all children suspected to be syphilitic. In a series of 69 cases, 55 had optic neuritis. In another series of 36 luetic infants 31 showed signs of optic nerve inflammation; thus in 105 infants 86 presented the lesion, or 81.9%. No other lesion in Neumann's Children's Hospital occurred as frequently; even enlarged spleens and coryza were observed only in 75.4% in the former and 73% in the latter series. Other structures of the eye were not usually affected along with the neuritis. In seven children chorioretinitic foci were observed at the same time; in three cases vitreous opacities, in one case iritis and in one case keratitis. The Berlin school has come to consider optic neuritis of great diagnostic importance in infants when syphilis is suspected, if meningeal and cerebral disease of other etiology can be excluded. As a diagnostic sign its early appearance is important. The youngest child in which it was observed was 13 days old; 13 infants were younger than 12 months,

and in the majority of cases it occurred within the first two years. The neuritis usually subsided with alacrity under mercurial inunctions, an observation corroborated in Hirshberg's clinic.

The motor nerves of the eye-ball and lids are not infrequently affected in hereditary syphilis. Lowport has observed ptosis, Willbrand and Sanger progressive external ophthalmoplegia. Antonelli asserts that 50% of luetic children possess a squint. The strabismus is caused partly by motor disturbances and partly by a reduction of visual acuity due to errors of refraction or to alterations in the eye-grounds, but behind these causal factors we must reckon, he insists, with the syphilitic dystrophy.

This militates against binocular vision either by a discordant sensory action of both retinae or the hereditary syphilitic dystrophy causes a direct disturbance of the convergence innervation.

While we will not all agree with Antonelli in his dogmatic assertion that 50% of all luetic children possess a squint, yet it must be conceded that quite a number of these unfortunates do have disturbed muscular balance and, at times, independent of refraction errors or fundus alterations. So that credence must be given this thought of the dyscrasia directly affecting the converging center or the retinae without visible lesion. It is more than mere coincidence that a large proportion of syphilitic children do present themselves with crossed-eyes.

WESTINGHOUSE BUILDING.

A NEW METHOD OF OPERATING FOR CATARACT AND ARTIFICIAL PUPIL.

J. G. HUIZINGA, M. D.,

GRAND RAPIDS, MICH.

(Illustrated.)

The *bête noir* of all cataract operations except by the Smith-Indian method is secondary cataract. If this could be prevented by measures that are at once safe and practicable in the hands of the ordinary ophthalmic surgeon, it would be a considerable step in advance.

It has been contended that the ideal cataract operation consisted in the removal of the crystalline lens in its enveloping capsule. The difficulties, dangers and subsequent complications of this, however, are so great that relatively few surgeons have had the courage to attempt it and still fewer have continued the prac-

tice of this method of operating after some experience with it. It is therefore not ideal.

The writer has tried this method at various times with varying degrees of success until he is thoroughly convinced that in his hands at least the Smith-Indian operation has but a limited field of usefulness. This has led him to study the problem of secondary cataracts from a different angle, with the result that the operation and instruments described in this paper were devised.

Secondary cataracts are usually the result of retained lens debris or degeneration of the anterior capsule and involves the posterior capsule only by extension or as the result of adhesions and cicatricial formations between the anterior and posterior capsules. They follow in about thirty per cent of the ordinary cataract operations and require one or more operations for their removal.

If the entire anterior capsule could be removed and the posterior capsule left intact secondary cataracts would be prevented in all but a few, rare and exceptional cases.

The common method of opening the anterior capsule to permit the delivery of the cataractous crystalline lens leaves all of the capsule within the eyeball. This sack-like remnant invites the retention of lens debris within its pocket which is difficult and at times almost impossible to remove. Its presence tends to excite inflammatory reaction resulting in adhesions between the anterior and posterior capsules with consequent opacities and cicatrices. The membrane sometimes becomes so thickened and hardened that it is with the greatest difficulty and danger that an opening can be made through it. Even then at its best the resulting vision is always far from satisfactory. The Smith-Indian operation is an attempt to prevent this, but its dangers and difficulties will always stand in the way of this becoming a popular mode of procedure.

The cutting out of a central section of the capsule, instead of merely incising it is another attempt to prevent secondary cataracts and in a degree it is an improvement over the old method and a step in the right direction. The trouble is that it does not go far enough. There will still be left within the eyeball sack-like pockets for the retention of lens debris with its subsequent undesirable results. Only by removing the entire anterior capsule can these pocket-like formations be prevented.

By means of crude instruments not at all designed for this

operation, the writer has removed practically the entire anterior capsule in several cases with splendid results. In order to perform this delicate operation more easily and more perfectly the following instruments and method of operating were evolved.

INSTRUMENTS.—The Swivel Cystotome was devised for the purpose of cutting through the anterior capsule, excising it completely by making the line of incision circular and parallel with and just inside of the margin of the crystalline lens. Any one familiar with the Ballenger Swivel knife for the submucous resection of the nasal septum, will immediately see the advantage of the application

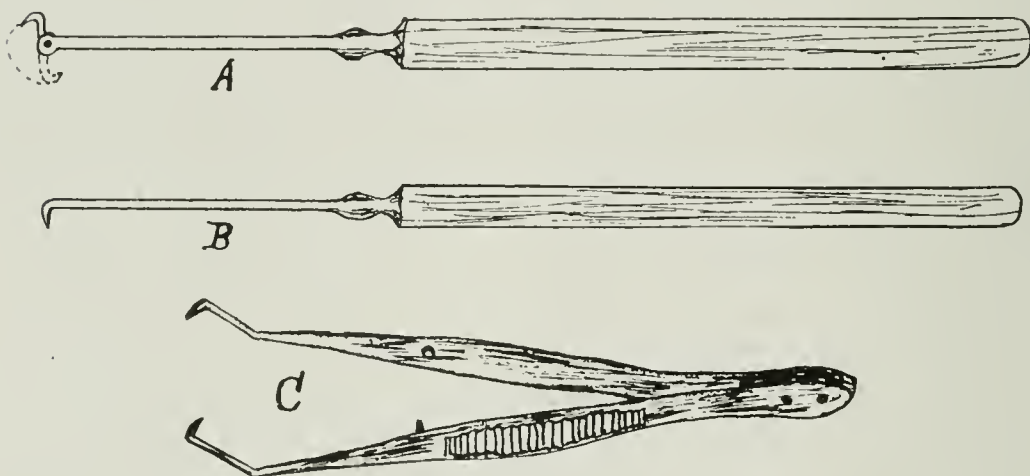


Fig. A.

Author's instruments: "A" swivel cystotome. "B" tenaculum hook. "C" tenaculum forceps.

of the principle of that instrument to the problem under consideration. It was from that instrument that the writer obtained his idea of a swivel cystotome. It will permit the making of a circular cut encircling practically the entire anterior capsule. The edge of the knife must be as sharp as it is possible to make it. With a dull knife the operation will be impossible.

A sharp tenaculum hook and a sharp tenaculum forceps are of advantage though not absolutely necessary. The writer believes that the anterior capsule can be more readily grasped by means of either of these than with the ordinary capsule forceps. The points of the tenaculum forceps are directed downwards so as to more readily enter the capsule. These points must be very sharp.

THE OPERATION FOR CATARACT.—The incision in the cornea or at the sclero-corneal margin with or without iridectomy, according to the requirements of the particular case or the judgment or choice of the surgeon, is made as usual. The swivel cystotome is

introduced into the eye with the cutting edge flat or sideways so as not to injure the iris or the capsule.

It is pushed straight across the pupil and through it down and under the iris, opposite the corneal incision, up to a point as

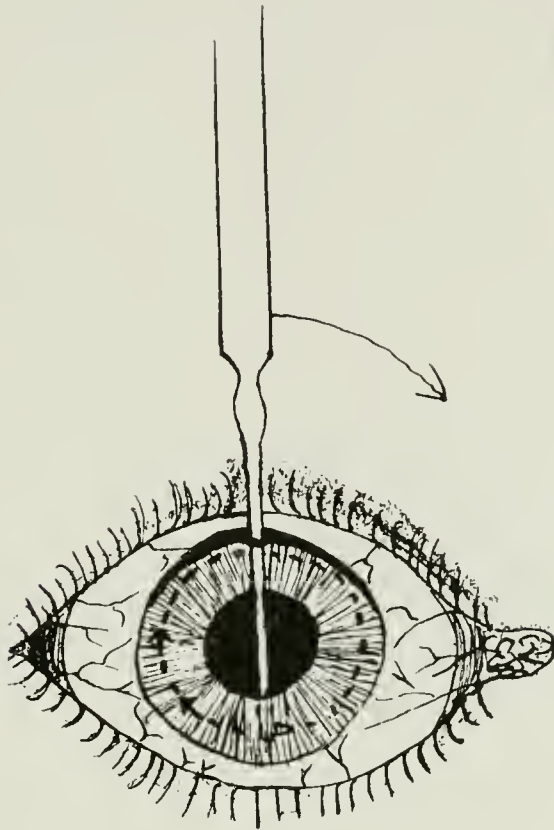


Fig. I.

Swivel cystotome in position under iris.

Dotted line shows line of incision through anterior capsule, cutting from right to left, the arrow indicating the direction of the movement of the handle of the cystotome while the knife is drawn in the direction of the arrows on the iris.

near to the margin of the crystalline lens as possible without coming near enough to the suspensory ligament to injure it. The handle is then rotated on its long axis so as to bring the point of the cystotome into contact with the anterior capsule and pierces it. The knife is then made to describe a circle of the largest possible diameter without going beyond the margin of the lens. The incision, if properly made, is circular, without interruptions and parallel with the margin of the lens. In making this circular incision the point of the knife will be hidden behind the iris to varying degrees of depth at different steps of the procedure. When approaching that section of the circle corresponding to the corneal incision, it is necessary if an iridectomy has not been performed,

to draw the iris out of the way of the advancing cystotome with a blunt iris hook so that the iris may not be injured and to prevent the iris from forcing the point of the knife out of its prescribed course.

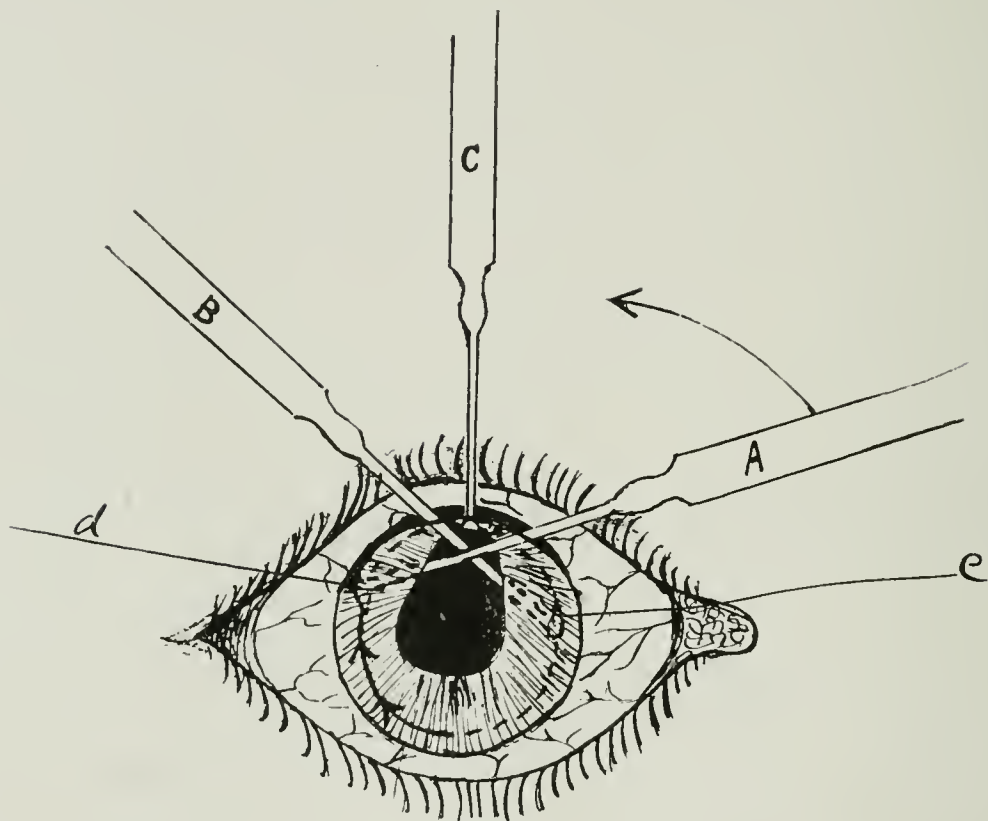


Fig II.

"C" represents the blunt iris retractor holding back the iris. "A" represents the position of the cystotome after making a quarter of the section, the arrow indicating the direction of movement of the handle of the cystotome in order to make the section from *d* to *e*, and the position of the handle from *A* to *B*.

It is absolutely necessary that the beginning and ending of the incision be continuous and that the knife engage the capsule at every point of the circle so as to leave no undivided gaps to hold the capsule and prevent its proper delivery. If the operator is not sure that the beginning and ending are at the same point (and no one can always be sure of that) it will be well for the end of the incision to overlap or parallel the first portion and then, by a slight movement at right angles, to unite the cuts. If this step of the operation has been properly performed the excised anterior capsule can be removed en masse by means of the tenaculum hook or the tenaculum forceps.

The delivery of the lens will be accomplished by the usual method. The excised segment of the capsule may be left to be

delivered at the time of and together with the lens, but it is best to remove it separately and thus be sure that it is out. If left to be delivered with the lens it may rub off and be lost in the anterior chamber when one would have to fish for it. The usual flushing out of the anterior chamber with normal saline solution, the closing of the wound, the toilet and the subsequent after treatment are in no ways departed from.

Irrespective of the advantages or disadvantages of an iridectomy so far as the delivery of the lens is concerned or the subsequent vision obtained, an iridectomy is an advantage in this operation. It enables the operator to make a much better circular incision and does less violence to the iris by the instrument rubbing against its pupillary edge than without an iridectomy. It is not necessary, but it is an advantage.

Extreme care must be exercised to prevent the delivery of the lens until the entire section has been completed. It is well known that at times the lens will expel itself at least partly as soon as the capsule has been incised. This unfortunate complication would prevent the purpose of this operation as it would practically be impossible to excise the anterior capsule after the delivery of the lens. This can be prevented by an assistant holding the speculum and drawing it away from the eye ball as far as possible without danger of withdrawing it altogether. Traction of this character produces a suction effect within the eye ball and tends to hold the lens in situ until the surgeon is ready to deliver it. Any assistant in this work must be an expert and preferably a surgeon himself.

THE OPERATION FOR ARTIFICIAL PUPIL.—When the pupil has become occluded as the result of inflammatory deposits, adhesions, etc., a new pupil will have to be made if the patient is to see at all. The swivel cystotome is of particular value in these cases. The steps of the operation are as follows:

The corneal incision is made to embrace about one-fourth to one-third of its circumference. The cystotome is introduced flat or sideways so that the point of the knife will not engage the membrane until it has been placed at the farthest point of the circular incision that may be necessary. It is recommended that the part to be excised be considerably larger than the area of the normal pupil because of the subsequent contractions that always take place. The first half or two-thirds of the circle can be cut without the aid of any other instrument within the eyeball, but to complete the cut (especially if the membrane be hard and dense) it will be necessary to support the portion to be excised and to hold

it taut with the tenaculum hook or forceps. Having removed the portion desired the wound is dressed as usual and the after treatment follows the well known and accepted ways.

The advantages of this operation for cataract are:

- I. Practically the complete removal of the anterior capsule.
- II. The retention of the posterior capsule to support the vitreous humor.
- III. No loss of vitreous.
- IV. Prevention of pocket formations where lens debris may gather and be retained.
- V. More perfect cleaning out of the anterior chamber after delivery of the lens.
- VI. The dangers of inflammatory reactions, due to retained lens debris and adhesions between the anterior and posterior capsules reduced to the lowest possible limit.
- VII. Practically all the advantages of the Smith-Indian operation without the dangers and difficulties attending that method of operating.
- VIII. For the operation for artificial pupil the advantage lies in the fact that it is possible to make any sized or shaped pupil in any location that may be desired.

215 Widdicomb Building.

REPORT OF A CASE OF ENDOGENOUS PANOPHTHALMITIS DUE TO COLON BACILLUS.

FREDERICK BENTLEY, M. D.

SEATTLE, WASHINGTON.

Mr. B. H. B. was first seen by me October 1, 1910. A diagnosis of iritis had been made the previous day, by the attending physician, and a one per cent solution of atropine three times daily, with cold applications, had been used for twenty-four hours. When seen the iris of the right eye appeared slightly discolored (greenish), pupillary margins were thickened and the pupil was contracted and irregular in outline with some grayish exudate, which prevented getting a reflex of the fundus. There was slight chemosis, but no increase in tension. Mr. B. had very little pain, his attention having been called to his eye, in the first place, by its redness and a slight blurring of the vision. There was no history of trauma.

Dr. Rininger, who referred the case to me, furnished the following facts as to its history:

"The family history negative. Had used alcoholics to excess for ten years, past five years in moderation, and had always been a heavy smoker; had hay fever repeatedly for the past twelve years; also had several attacks of muscular rheumatism; been suffering from diabetes for three years; lost twenty-five pounds in weight in the past two years. One year ago had gall stone colic, followed by cholelithiasis. General condition would not permit of an operation. For several years his blood pressure ranged from 170 to 200, pulse averaging about 90; heart hypertrophied. Knee reflexes absolutely gone and had a paresthesia of both legs. Pupils reacted normally and co-ordination seemed normal (I classified his nervous condition as disseminated sclerosis). In August, 1910, he developed a pyelitis and cystitis, with colon bacillus infection."

When I first saw Mr. B. the condition of his kidneys and bladder had greatly improved. He was confined to bed chiefly because of the weakness of his extremities. At first I suspected a simple case of diabetic iritis. The chemosis and the fact that I could get no light reflex from the fundus made me, however, slightly suspicious of more serious trouble. During the next few days the chemosis increased so rapidly that it was practically impossible to get a view of the cornea, the lids became thick and swollen and there was marked proptosis. The swelling extended over the entire right side of his face and his eyeball became immovable in its orbit. There was no glandular involvement. During all this stage of swelling the pain was very slight. I thought this might possibly be due to the fact that he was having small doses of codeine administered for his systemic condition; however, stopping the codeine was not accompanied by increase of pain.

The chemosis and swelling remained very marked for one week, when it began gradually to subside until the entire cornea was visible. The eyeball began to have slight movement, the pupil was only partially dilated and very irregular. There was no sign of pus in the pupil and there was no light perception. The vitreous was so hazy that it was impossible to get a view of the fundus. On about the ninth day a small circular yellow band appeared in the angle of the anterior chamber, and increased rapidly in size during the next few days. The advisability of removing the eye was then considered, but the patient's general condition was such that it was deemed inadvisable to give a general anæsthetic and I decided to incise the sclera. This was done on the 18th; getting no pus from the scleral puncture, I then opened the anterior chamber, and a considerable amount of pus oozed from this opening. At the time

of the second dressing, following the opening of the eye, the crystalline lens was found in the conjunctival sac.

The following is the report furnished by a bacteriologist:

Organism—*B. Coli*.

Source of Culture—Pus, from eye.

Incubation—24 hrs.; 37 degrees C. Temp.

Cultural Characteristics (after 12 hrs.):

Morph. Bacillus—Neg. Gram. About 2u to 4u in length and about 7u in width, occurring singly and in pairs.

Motility—Slightly motile.

Agar.—Luxuriant viscid growth—very heavy.

Gelatin—Not liquefied.

Lit. Milk—Acid formed in 12 hrs. (milk not yet coagulated 12 hrs).

Gas—Yes.

Indol.—(Not time.)

A vaccine was prepared from this source which was used therapeutically.

After draining the eyeball the inflammatory signs gradually subsided, and the eyeball was shrunken in several weeks' time so that I was about to have the patient fitted with a glass shell. Arrangements were being made to do this for him, when he suddenly died of cerebral hemorrhage.

Reports of Societies.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of April 17, 1911.

Dr. H. W. Woodruff, Presiding.

A Case of Sympathetic Ophthalmitis First Appearing Four Days After Removal of the Excising Eye, with Histological Report.

Dr. Carroll B. Welton of Peoria reported the case of a carpenter, aged 35, who was struck in the left eye by a large nail, which penetrated the globe. The iris was prolapsed into the wound, anterior chamber was full of blood, and vitreous was seen at the wound entrance, but only a small quantity had escaped. Vision, finger counting at 2 feet. Fellow eye normal. Patient refused enucleation. Iris fragments were snipped off. At the end of ten days wound had closed. Projection at this time was faulty. Vision in fellow eye 20/20 with normal range of accommodation. Advice to have the injured eye removed on account of possibility of sympathetic involvement was finally heeded and the eye removed on the thirtieth day. Fellow eye was normal as to vision and accommodative power.

Four days after enucleation, sympathetic disease manifested itself by slight pain, reduction of vision to 20/40, photophobia and recession of accommodative power at near work. Iris dilated only partially under atropin, media fairly clear. In the choroid, many nodes of a whitish yellow color were present. Patient immediately put to bed and given sodium salicylate. The next morning precipitates were present on Descemet's membrane. A mesh of new blood vessels were present over the surface of the iris. Patient improved under treatment and in ten days salicylates were stopped and he was discharged from hospital three weeks later.

Three months after the time of the injury, vision was 20/20. Histological examination of the injured eye shows a marked proliferative uveitis of the type described by Fuchs.

Abstracts from the literature of twenty-seven cases of this post-operative type of sympathetic disease were given. Time of onset, in this form of the disease, is within a month following enucleation. Fifty-nine per cent recovered with normal vision.

From a study of these cases Dr. Welton concludes that the

infectious agent is carried to the fellow eye by the general circulation.

Dr. H. W. Woodruff thought that it might be possible to discover the symptoms of early transference in the sympathizing eye by careful examinations made from day to day so as to be on the alert for the first manifestations of sympathetic trouble developing.

Dr. L. N. Grosvenor suggested that in all such cases it is advisable to keep a record in the nature of a drawing of the fundus. This would offer a very practical and conclusive basis of comparison from time to time in observing such a case.

A Case Presenting Symptoms of Trachoma, Vernal Catarrh and Follicular Conjunctivitis.

Dr. Clifford E. Smith presented E. S., female, age 14, from the service of Dr. Willis O. Nance at the Eye and Ear Infirmary, who came from southern Illinois, accompanied by a little sister who gives the same history and shows the same findings.

Patient dates her trouble to measles three years ago, but active trouble seems to have developed two months ago. Eyes have smarted more or less, but the lids have never been inflamed or stuck together in the morning. Vision in each eye is 20/20 and neither corneæ show any pannus. The conjunctivæ of all four lids and fornices are thickly studded with flat-topped sessile follicles varying from 1 to 2 mm. in diameter. The conjunctiva between the follicles is not infiltrated, the entire area presenting a pinkish-white appearance, rather than one of inflammation. The ocular conjunctiva presents the normal white appearance. There is no drooping of either upper lid.

Summary.—(1) In trachoma of this duration, we would expect some pannus, and inasmuch as trachoma is a contagious, inflammatory disease, we would expect to find in any case more signs of inflammation with more or less discharge, which is not present here.

(2) In vernal catarrh we would expect to find a more milky-white appearance of the conjunctiva. In this case there is a suggestion of the "cobble-stone appearance" described by Fuchs, and we have the history that the present attack came on in the early spring. No eosinophiles were found in this case.

(3) In follicular conjunctivitis, we often get such an appearance with very few signs of inflammation. As a rule, however, the upper lid conjunctiva is not so extensively involved, and in most cases the duration is shorter.

Dr. T. A. Woodruff was of the opinion that the case was one of trachoma and if it had occurred in private practice would have treated it as such.

Dr. H. W. Woodruff called attention to the facial expression of the patient as being "typically trachomatis," an expression almost always exhibited by a patient who has had trachoma. In all cases of this character laboratory findings are usually negative, therefore it is necessary to take into consideration the clinical manifestations, and of these clinical manifestations the ptosis is the distinguishing and almost constant symptom.

Dr. Thomas Faith suggested expression and the subsequent behavior of the lids as a means of differential diagnosis between trachoma and vernal catarrh.

Dr. W. A. Barr said that this patient has a younger sister in Dr. Beard's service at the Illinois Eye and Ear Infirmary, suffering from apparently the same disease. It is evident that more than one member of the family is afflicted with the malady. The indication from the history sheet as well as the clinical picture is trachoma. The younger sister has been much improved by expression of the granules.

The Rationale Based on Surgical Pathology—Symposium on Diseases of the Nasal Accessory Sinuses and Their Relationship to Diseases of the Eye.

Dr. Joseph C. Beck presented this feature of the subject. He said that the pathological anatomy of the nasal accessory sinuses explains most of the symptoms referred to the eyes, and the further study of the surgical pathology can in most instances verify the cause of these symptoms. The positive results from surgical treatment of these accessory cavities is still another proof of the rational relationship that exists between the nose and the eyes.

He referred to the acute fulminant type of sinuitis in which either perforation or thrombosis has taken place with secondary infection of the orbital contents. This condition is most frequently secondary to an acute rhinitis and simple sinuitis, frequently in cases of pre-existing chronic sinus diseases. In cases which have developed in a pre-existing chronic sinuitis, one will find chronic granuloma and polypi, or even old necrotic areas.

The bacteriological examinations of the secretion show many varieties of microorganisms; the staphylococcus, micrococcus catarhalis, streptococcus, pneumococcus, and bacillus influenza are found. Besides, many of non-pathogenic variety are present.

In chronic forms of sinusitis we find a larger number of ocular symptoms and diseases caused by the said affection, without the patient recognizing that there is anything very much the matter with his nose. In chronic suppurative sinusitis the middle turbinate body is in a true state of hypertrophy. The ethmoidal cells break down easily under the pressure of a curet. The pus is of a thick consistency and may or may not have odor, depending on the extent of retention and bony necrosis; also whether we have the specific microorganisms present of fetid ozema.

In chronic non-suppurative sinusitis the middle turbinal is somewhat enlarged, especially anteriorly, and this has often the appearance of a polypus. The bone may be large because of rarefaction, and can easily be cut off or mashed. There are areas of polypoid degeneration on its under or outer surface. When polypi are present, and they are usually present, hidden early, and very manifest later, they are soft and more grayish in appearance. The ethmoidal cells are usually distended with polypi and many partitions are destroyed by pressure. Since the other sinuses, frontal, antrum and sphenoid are seldom opened in this condition, the pathology is not well known, except from post-mortem examination, and then the changes are found practically the same, except not so marked as in the ethmoid. This affection may be called chronic non-suppurative ethmoiditis rather than sinusitis.

These changes will very well explain symptoms of referred irritation in sensory and motor nerves, which cause ocular symptoms. The same is true in the suppurative form, but the pressure is not as great as a rule. Besides, the chronic suppurative process can extend to the orbital structures also by continuity of tissue causing inflammation of the nerves, muscles, etc. Both suppurative and non-suppurative forms will obstruct the circulation and explain symptoms caused by these vascular changes.

Anatomic and Physiologic Relation Between the Eye and the Nose.

Dr. A. H. Andrews discussed the anatomic and physiologic relation between the eye and the nose under four heads. (1) The relation of the orbit to the bony walls of the nose and its accessory cavities. (2) The relation of the optic nerve to the accessory cavities. (3) The relation of the circulation of blood in the orbit and the blood vessels in the nose and accessory cavities. (4) The relation between the nerve supply of the two parts.

The orbit is one-half to three-fourths surrounded by the bony

cavities connected with the nose. It is not strange that diseases of these cavities should seriously affect the ocular structures.

The thickness of the bony wall between the orbit and the nasal cavities varies to a considerable extent. There are sometimes dehiscences. The wall may be very thin or the bony plate may be thick and strong. In very thick skulls there seems to be a corresponding thickness of the naso-orbital walls, although exceptions are sometimes seen.

The bony plate lying between the sphenoid cavity and the optic foramen varies in thickness from $\frac{1}{2}$ mm. to 2 mm.

The optic nerve, lying as it does in close proximity to these cavities, is especially liable to become involved. This is in part accounted for by the fact that the so-called optic nerve is not really a nerve at all, but a central inter-cerebral cord (*Spaltholz*), having coverings the same as the brain and spinal cord. The highly specialized function of this tract makes it more susceptible to disturbing influences around it. The absence of sensation makes disease of this tract insidious.

Diagnosis of Associated Disease of the Eye and Nasal Accessory Sinuses.

Dr. Frank Brawley declared that the close relation of nasal to ocular diseases becomes more apparent as we learn to look for the important diagnostic points.

Asthenopic symptoms due to sinus diseases are usually reflex in nature, but may also be due to a toxic process or to stasis in the orbital circulation resulting from the circulatory disturbances within the diseased sinuses.

All varieties of visual field anomalies have been ascribed to sinus disease, but the most valuable findings are central and paracentral scotomata and enlargement of the blind spot.

The eyelids may show edema as a result of frontal or anterior ethmoidal infection, and this tends to lessen as drainage is established, being less at night than in the morning.

Van der Hoeve has found enlargement of the blind spot, which he calls peripapillary scotoma, to be one of the earliest symptoms of the disease of the posterior accessory sinuses.

If at the first appearance of the lid edema, the sinuses are investigated and proper drainage established, it would rarely be necessary to do the radical operations about the orbit and the safety of the globe would be assured.

As improvements in diagnostic methods, such as the X-ray and

the vacuum apparatus, make early diagnosis of sinus disease possible, we are more frequently detecting its influence upon the ocular structures. We are also finding that the ethmoidal and sphenoidal cells are much more frequently diseased than we formerly believed and that they act much more frequently as the source of the ocular disease than the frontal or maxillary sinuses, which doubtless owe their past prominence in this respect to their greater accessibility.

Discussion on the Papers of the Symposium.

Dr. Faith recalled a case of non-suppurative sinus disease in a patient, which later became of a suppurative type. The case presented many difficulties in diagnosis. A one-sided orbital cellulitis developed, the globe became infected and eye was later removed. A later examination showed polyp in the nose and frontal sinus. Another case in his experience was diagnosed as a cyst of the lachrymal sac which was later found to be a purulent process, communicating with the ethmoidal bulla.

Dr. Lewis asked for information regarding a case of an amblyopic eye. Examination showed diseased tonsils, adenoids and a mucopurulent discharge from the nose. In four or five years, the vision was reduced from 30/40 to 30/100. No fundus lesion or demonstrable ocular involvement. The doctor desired an opinion as to the possible cause of the reduction of vision.

Dr. H. W. Woodruff reported the case of a patient who consulted a rhinologist who advised operation on the nose for the relief of eye trouble which was an optic neuritis. Later the oculist found a stigmatism and this being attended to, the eye condition cleared up. He found the more difficulty in the recognition and treatment of the non-suppurative conditions than in those of the suppurative variety.

Dr. A. H. Andrews, in closing, said that when a patient has headache, etc., and the fitting of glasses relieves the trouble, the thanks are unreservedly given to the oculist for the relief of the condition, and vice versa if a rhinologist is consulted for the headache and relief is obtained the rhinologist receives the thanks of the patient. He emphasized the advantages of the pressure test and the use of cocaine in the diagnosis of many of the annoying conditions of the nose which might be productive of ocular mischief.

Dr. Jos. Beck, in closing, agreed with Dr. H. W. Woodruff that the non-suppurative conditions were the most difficult to diagnose.

He emphasized the importance of always examining tissues themselves and usually some change will be observed. The X-ray is of no value in the diagnosis of sphenoidal conditions: the sphenoidal sinus, however, in his experience, has been the most frequent source of trouble.

Dr. Frank Brawley, in closing, called attention to the fact that this class of cases is best treated by those who take into consideration the co-relation of the nose, throat and eye. The study of the fields of vision is essential and of much value in establishing a diagnosis.

WILLIS O. NANCE, Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the Medical Society's Rooms, Chandos Street, W., on Thursday, June 8th, Dr. George A. Berry, President, in the chair.

Mr. Arthur Benson showed a case of extra-dural tumor of the optic nerve, and Mr. A. W. Ormond a case of myotonia atrophica with cataract. The latter was discussed by Dr. F. E. Batten, who considered it belonged to a group of myopathy. There was also another class of myopathy associated with cataract in young children. Mr. Raynor Batten also spoke upon it. Dr. George Mackay showed a case of Spring catarrh treated by radium, and a case of penicillium glaucum in the canaliculus. Mr. Sydney Stephenson showed an early case of the limbal form of Spring catarrh. Dr. F. E. Batten showed, for diagnosis, what he regarded as a case of tubercle of the choroid. Mr. Cobbledick showed a case exhibiting congenital deficiency of the voluntary muscles supplied by the right third nerve.

Mr. Wray read a paper on Conical Cornea. He urged it was important to diagnose conical cornea early, for a cone implied thinning as well as softening. Efforts should be made to stop the thinning—to prevent the increase of pathological astigmatism, and to reduce that already formed. According to the author, conus was preceded by astigmatism against the rule most correctible by a *plus* cylinder tending 5° to 15° down and in. A *minus* cylinder was more frequently needed, possibly because myopia was less frequent than hypermetropia. The conus was detachable by the mirror where the astigmatism was about *plus* 1. Over *plus* $2/5$, the vessel test and cone shadow were easily seen, though above 5 the vessel phenomenon was less so. Most of the patients were females from

18 to 25 years of age. The important points in diagnosis were (a) The correcting cylinder being generally plus and 5° to 15° down and in. (b) A distinct cone shadow in those which developed on account of asthenopia. (c) The blood vessel phenomenon being always marked, but more easily seen in the lower grades. (d) The astigmatism being seldom stationary. (e) The patients seeking advice later than those with ordinary astigmatism. (f) Distant and near vision with and without glasses being better than in ordinary astigmatism. It had been said that there was no evidence that suitable treatment could retard the progress of the conical cornea. This was not the author's experience. Nothing short of accurate correction would prevent the "lid-squeezing" that masked and accelerated the evolution of the cone, even if softening and thinning were not present. The leading points in treatment were: (a) Accurate glasses; (b) no work at reading distance; (c) good hours; (d) air, exercise, etc.; no night work, and (e) a suitable occupation. Local treatment should be based on the type in hand. Type 1; unioocular conus astigmatism. Both eyes to be corrected, as the other would probably become affected later. A slight pressure bandage should be worn night and day over the affected eye. No work at reading distance. Type 2, both eyes affected. Astigmatism plus 6 D. Binocular bandage night and day. During exercise one eye open. The eyes never to be fully opened. Correcting glasses when the eyes were in use. Type 3, considerable difference between the eyes. The worse eye should be bandaged night and day. The good eye, suitably glassed, to be used for exercise and meals. The good eye not to be opened wider than necessary. Type 4, unioocular cone, astigmatism in the other. The same treatment as previously stated. The cautery should be used if the cone were considerable, or if minor measures effected no improvement in three months. Type 5, binocular conus. The best operative treatment was Sir Anderson Critchett's, but it should be clearly understood the operation neither strengthened the softened cornea, nor cured the thinning. Mr. Wray regarded operative procedures neither as the beginning nor the end of treatment. He had had a case in which vision was 6/9 immediately after the operation, but reduced to fingers several years later. Sir Anderson Critchett said the subjects of the condition were generally debilitated, and he asked what was the reason for employing mercury. With regard to operation, nothing could excel the marvelous improvement in sight obtained by removal of an ellipse. One naturally had in mind the prescribing of the greatest amount of good to the greatest num-

ber. He had had a case in which the vision was 6/9 afterwards, and Mr. Stanford Morton and the late Mr. Silcock had obtained as much as 6/6. By his (Sir Anderson's) method one could deal successfully with the cases in which softening had already occurred, and in which removal of an ellipse was a practical impossibility. He aimed at not perforating the cornea, and since he introduced the method, he had operated upon 19 or 20 cases, and among those he had found it necessary to repeat the operation on 3 or 4 occasions. Those were early cases, where he did not venture to go as near to Descemet's membrane as he subsequently did. The principle of his operation was the formation of three bands comparable to the hoops around a barrel, with the idea of getting graduated pressure from the three bands. The apex of the cone he dealt with by means of a rather highly heated cautery, burning until he got as near to Descemet's membrane as he dare go. Dr. Maitland Ramsay said he could corroborate all that had been stated about the operation, which he had performed in from a dozen to twenty cases, and he was very well satisfied with it. Dr. George Mackay raised the question of using convex cylinders in these cases, his idea being that conical cornea required concave cylinders. Mr. Johnson Taylor took the opposite view to Dr. Mackay. Mr. Sydney Stephenson alluded to Mr. Lang's remark that many patients with conical cornea did remarkably well with high convex cylinders. He reminded the meeting that William Thompson, of Philadelphia, in 1872 pointed out that in many cases of conical cornea the symptoms could be relieved by optical correction. Dr. Landolt (Paris) said that when any treatment could be undertaken to correct the defect produced by kerato-conus, one willingly resorted to it; but it was very rare that any optical correction was applicable to kerato-conus, either cylinders or highly concave lenses. Where those failed he had tried with good results simple cauterization of the highest point of the cone with the galvano cautery point. One should not go too deep, but should be willing to repeat the operation. Mr. Lang remarked, in reference to Mr. Stephenson's comment, that he did not invent the high convex cylinder for the condition; he derived the idea from Mr. John Couper. One might go as high as 15 or 16. The President expressed his anxiety about the ultimate history of the cases. He had no experience of the results after a long time. Sir Anderson Critchett, answering the President, said that a fortnight ago he had a letter from a patient on who he did the operation 14 years ago, and whose sight was still

much improved. Mr. Wray replied at length to the criticisms, pointing out that he used mercury with large potations of water with the idea of improving the general health; and a doctor patient had testified to the benefit he derived from that treatment. Prophylactic treatment was not inconsistent with the operative treatment.

Major Elliot, I. M. S., read a paper entitled "The Operation of Simple Trephining for the Relief of Glaucoma." The paper was based upon 400 recent operations at the Government Hospital, Madras, performed by 15 surgeons. The quadrant of the eye for the trephining was the upper, for choice, as the wound was less exposed to infection, and was under the cover of the lid; also the flap rarely required a stitch. In staphyloma one must choose the best available spot. Originally he brought his incision on both sides of the cornea; but now he made a flap out of each side of the cornea, to provide a clear way for the fluid which filtered through the anterior chamber. The conjunctiva should be seized as high up as possible with forceps and drawn down, the patient being instructed to look strongly downwards. A general anæsthetic was practically never used in the Madras Hospital. It was not necessary to clean right down to the sclerotic throughout the limits of the flap, only down to the part where it was intended to trephine. It was a great mistake to pull upon the flap in any way. The appearance at the edge of the cornea was very comparable to the appearance of the glans penis; the cornea seeming to overhang the surrounding sclerotic like the corona of the glans penis surrounding the neighboring part. In Madras they steadily separated the corneal conjunctiva from the cornea itself, splitting the cornea so as to get well forward on to the anterior chamber. If one went too far back one came upon an adherent iris and there was trouble. When beginning to split the cornea one saw an appearance like a myopic crescent, and when that was seen surrounding the flap one was quite safe in entering the anterior chamber with the trephine. It was necessary to have a sharp trephine, and to keep the operation area clear of blood, so as to see exactly what one was doing. If the disc happened to be pushed into the chamber, it should be left alone, as it was aseptic tissue and would do no harm. Tension was low for the first few days, and then gradually rose. He followed some educated patients up, and 8 months afterwards there was no detachment of retina, and the vision was good. Surgeons feared low tension because it was so often associated with detachment of retina. Cocaine and adrenaline should be injected a few

minutes before the operation, and then no general anæsthetic was required. Out of 403 cases before he left, 66 had returned. Mostly the vision improved, pain was relieved, and the tension went down. The paper was discussed by the President, Mr. Sydney Stephenson and Mr. Harrison Butler, and Major Elliot replied. Mr. Thomson Henderson read a paper on "Anatomical and Mechanical Factors in Accommodation." He said Helmholtz's theory of the mechanism of accommodation implied that the elasticity of the vascular choroid was greater than that of the non-vascular lens and therefore in accommodation the ciliary muscle acting as a Tensor Choroideæ, turned the balance in favor of the lens. Mechanically this agency would be perfectly in order were the zonula suspended in a straight line from the equator of the lens to the ora serrata, for then it would be true the elastic traction of the choroid would be transmitted direct and unimpeded to the lens, and *vice versa*. As it was, however, the zonula did not run in a straight line, but as it passed from the lens backward towards the orbiculus ciliaris it presented a curve along its attachment to the ciliary body. This obvious, though unappreciated, fact was the point round which centered the whole question of the principles involved in accommodation. In considering these principles the fact had been overlooked that a curve or bend in a non-rigid structure bearing a strain could only exist so long as the point of curvature was supported and the support so given took a share in sustaining the strain. Now the zonula was attached at its point of curvature to the ciliary body and therefore the ciliary muscle—the structure responsible for the bulk of the ciliary body—must assist in supporting the zonular curve. The author's views of the mechanism of accommodation was that although in accommodation the lens was released from tension, yet this result was not brought about by a dragging forward of the choroid, but by a descent of the zonular curve by which the ciliary muscle alone, and not the choroid, sustained the full weight of the elastic traction of the lens. Each of the three anatomical divisions of the ciliary muscle had a specific role. The circular fibers acted as a sphincter ciliaris, having as opponent the radiating fasciculi. These latter, from their position, supported the zonular curve, and therefore operated as a tensor zonulæ. The longitudinal fibers terminated in the stroma of the supra-choroidæ and orbicularis ciliaris, and acted as a sustentaculum zonulæ to the distal extremity of the zonulæ. In positive accommodation the zonular curve was lowered by contraction of the sphincter ciliaris (circular fibers) associated with simultaneous relaxation of the tensor zonulæ (radiating

fibers), while in negative accommodation, the now relaxed tensor contracted and raised the zonular curve and the sphincter relaxed. The sustentaculum zonulae (longitudinal fibers) played throughout a purely passive part, as it merely supported the orbicularis ciliaris, and thus prevented any strain being transmitted to either choroid or retina.

C. DEVEREAUX MARSHALL.

SECTION ON OPHTHALMOLOGY.

College of Physicians of Philadelphia.

Meeting March 16, 1911. Dr. William M. Sweet, Chairman,
Presiding.

Buphthalmos.

Dr. Leonard D. Frescoln exhibited a case of *Buphthalmos* occurring in an Italian immigrant, aged seventeen years, who was admitted to the Philadelphia General Hospital on March 7. The vision of the right eye was 1/100. The cornea measured about 15 mm. in diameter and was clear. The anterior chamber was deep. The pupil was slightly irregular and was sluggish in its reactions. Above, in the upper portion of the pupil, could be noted a few posterior synechiae. The nerve head showed a marked cupping and the eye was myopic to the extent of 7.00 D. T. +. In the left eye the vision was 20/30 and in other respects similar to its fellow.

Dr. Holloway stated that there were some half dozen cases of buphthalmos in the Pennsylvania Institution for the Instruction of the Blind, and most of the eyes showed some corneal opacity. Recently one of these children, as a result of trauma, developed a hyphema that almost completely filled the anterior chamber; this was absorbed without subsequent pigmentation of the cornea.

Dr. Langdon thought that one of the most interesting features in the case exhibited by Dr. Frescoln was the unusual depth of the anterior chamber, which seemed to be out of proportion to the general enlargement of the globe.

Hess Operation for Bilateral Congenital Ptosis.

Dr. Holloway exhibited a patient, aged thirty-five years, on whom a *Bilateral Hess Operation* had recently been performed for congenital bilateral ptosis. The greatest width of the palpebral fissure of each eye had been 4 mm., and during the past few

years the patient had frequently been compelled to stop work owing to the extent of the ptosis. The skin of the forehead was markedly corrugated and there was some upward rotation of the eyes, but this was difficult and was poorly maintained. The other ocular rotations were full. The result of the operation was excellent and at the present time the palpebral fissures can be said to be of normal width and practically equal. Furthermore, the patient can close the lids. While the technique of this operation may be regarded as simple, the dissecting of the skin flap requires more care and is more tedious than one is led to believe by some of the descriptions found in the various works of ophthalmic surgery. Dr. Holloway believed that the dissection should be carried well toward the margin of the lid and care should be taken that the loose areolar tissue does not deceive one as to the actual depth of the pocket. Immediately following the operations a ring mask with transparent celluloid bound down by adhesive plaster was used as a protection to the eye.

Dr. Zentmayer said that some years ago he had performed the Hess operation on one eye, and the Tansley-Hunt operation on the other eye, of the same patient. Judged by a photograph of the patient taken about two years subsequently, the Hess operation had given the better result, as the normal elliptical aperture of the palpebral fissure had been retained, whereas in the other eye the fissure was relatively too wide at the point corresponding to the position of the skin tongue which is slipped up under the brow. In another case in which the Tansley-Hunt operation had been performed, there had been a disfiguring thickening of the wound margin in the skin of the lid.

Tubercle of the Iris.

Dr. Charles R. Heed exhibited a male, aged forty-five years, colored, who, at the age of seven years, was attacked with scrofula affecting the glands of the face and neck and which continued for a period of seven years. In October, 1910, he contracted syphilis. When first seen he stated that the condition had been present for two weeks. The right eye was healthy and the visual acuity was 6/6. The visual acuity of the left eye was 6/21. The conjunctiva was congested; the pupils small and fixed. In the superior nasal quadrant of the iris could be noted a small nodule situated midway between the ciliary and pupillary borders. Two weeks later, despite the fact that the patient had been on mercurial treatment, the nodule was much larger, lighter in color and apparently caseating. Ten

days later a light gray deposit filled about one-quarter of the anterior chamber. Dr. Heed felt that the following points would favor the diagnosis of tubercle: The history of scrofula; positive von Pirquet; situation of the nodule and its rapid growth during the administration of mercury; its pale color and apparent caseation.

Dr. Sweet stated that he had examined the man upon his admission to the hospital, and, with the history of specific infection, regarded the growth as a gumma of the iris. The increase in size under full doses of mercury by inunctions, and the alteration in the appearance of the mass, pointed to tubercle of the iris as the more probable diagnosis.

Dr. Zentmayer said that as in this case both infections, tuberculosis and syphilis, were known to be present, the diagnosis would have to rest on the clinical conditions, and based upon this he favored syphilis as the probable cause. Tuberculosis of the iris was usually seen in young individuals and he thought usually in association with a cyclitic nodule and sometimes with the characteristic deposits in the substantia propria of the cornea. He did not think much weight attached to the fact that here was a hypopyon, as this occurs also in the large yellowish-red papules of syphilitic iritis.

Dr. Randall said that failure of the lesion to respond to anti-syphilitic treatment hardly proved its non-luetic nature. The worst case of gumma of the iris which he had seen, and perhaps previously quoted, showed multiple lesions of each eye. They grew worse under mercury pushed to salivation and under iodide pressed until the patient with marked acne and stuffed nose, begged off from its further use. He was then lost sight of for nearly a month, confined by pneumonia and having no specific medication, and was greatly worse when seen again, the lesions, like multiple sarcomata, threatening to come through the infiltrated cornea. Under 5-drop doses of Donovan's solution, which was perfectly borne, the growths melted away with marvelous rapidity, a week making huge improvement and a fortnight more bringing complete cure.

Dr. Crampton in referring to the hypopyon in Dr. Heed's case, spoke of the interesting results he had experienced in a few cases of keratitis with hypopyon. Having in mind W. M. Barton's successful recovery of formaldehyde from pus obtained from a case of disease of the middle ear when hexamethylenamin had previously been administered internally and also the experimental work of Crowe, of Baltimore, who recovered the drug from the spinal canal under

similar conditions, Dr. Crampton determined to try the same test on the aqueous humor. Pending the finding of a suitable case for this he administered the drug empirically in cases of keratitis with hypopyon with what appeared to be most satisfactory results. The number of cases, however, were too few for the formation of a definite idea as to the usefulness of the drug.

In a case of rheumatic iritis in which hypopyon suddenly appeared, the latter cleared up in twenty-four hours, during which time four 5-grain doses of formin had been administered, only to be followed the next day by a hyphema which disappeared over night on discontinuing the formin.

In a case of hypopyon associated with traumatic ulcerative keratitis the deposit was cleared up after the ingestion of three 5-grain doses of hexamethylenamin. Atropine, of course, was used locally.

Dr. de Schweinitz inquired of Dr. Crampton whether he had tried urotropin in iritis iridocyclitis, or uveitis, in the absence of hypopyon, and spoke of a patient with a traumatic iridocyclitis in whom the remedy had seemed to be of much service. He also discussed its recent use in sympathetic ophthalmia and its value in general surgery when it was administered to patients with head injuries or other cranial conditions liable to originate meningitis prior to and after operative interference, and to a similar use of the remedy in joint surgery.

Some Anomalies of the Retinal Circulation.

Dr. G. E. de Schweinitz exhibited a water color of the right fundus oculi of a man, aged thirty years, who had consulted him in the convalescence stage of a mild iritis of the right eye. The patient was married, had three healthy children, was subject to rheumatism, and had contracted gonorrhea at the age of twenty. In other respects his condition was good, and there were no anomalies of the cardiovascular apparatus. Both eye-grounds exhibited the most astonishing tortuosity of the retinal vessels, both arteries and veins being affected to a degree that Dr. de Schweinitz had not previously observed. The veins, especially of the left eye, were larger than normal, the arteries of about normal size. The tortuosity affected all ramifications of the retinal vessel system. Vision, after the correction of 2.50 D. of H., was entirely normal. Dr. de Schweinitz referred to other reported cases of this character, notably the ones described by Nettleship.

Dr. de Schweinitz also exhibited a water color of the right fun-

das oculi of a Russian woman, aged twenty-seven years, the refraction being myopic ($-8\text{ s } \overline{\quad} -0.75\text{ c axis } 60, V. = 4/6$), in which the inferior temporal vein, instead of penetrating the disk in the usual position, was placed close to the lower and outer margin of the disk. Here the vessel made a sharp forward bend and bridged a moderate area of choroidal disturbance; its remaining length pursued about the usual course, and the vessel was about of normal size. Its point of entrance into the disk was surrounded by a circle of dense black pigment, in diameter about half the width of the vein. Dr. de Schweinitz in his previous examinations of aberrant or anomalous vessels, had not noted this circle of pigment at the point of emergence or entrance, although he had often seen patches of pigment on the disk surface.

Dr. de Schweinitz also made some reference to unusually active pulsation of retinal veins in asthenopic eyes, and noted that in some cases in which the ocular discomfort was limited to one eye, this eye alone exhibited the venous pulsation, or else exhibited it in a much more marked degree than its fellow.

He also made some remarks on what he termed "abnormal smallness of the retinal vessel system," which he thought he had noted in some patients with pronounced and long-continued, so-called neurasthenia, vision, light-sense, and field of vision (unless it was a retinal tire field) being normal. He referred to the statements of some neurologists that patients who were the subjects of such a neurosis had not infrequently what had been termed a "smallness of the general vascular system," and therefore an inadequate blood supply, and he thought that if these observations were correct, and he fully realized how many would have to be made to determine their accuracy, they furnished an interesting subject for future study.

Dr. S. D. Risley said he was much interested in the cases presented by Dr. de Schweinitz. He did not recall any cases in his experience occurring in healthy eyes and without general vascular derangement, presenting such striking engorgement of the retinal circulation as shown in the illustration presented by Dr. de Schweinitz. He had, however, seen many instances of marked venous pulsation at the *poros opticus* in asthenopic eyes. One of these cases, a medical student, now an eminent practitioner, he had had under observation for several years, but the pulsation and asthenopia persisted. Dr. Risley had never been able to formulate any satisfactory explanation for the pulsation. He had often

seen aberrant retinal vessels emerging from the surface of the papilla, but had never seen one with a ring of pigment around as shown in the illustration. The abnormally small retinal vessels and the suggested possible relation to neurasthenia was very interesting. He could conceive it possible that the retinal circulation might be but part of the general "smallness of the circulation" system, and that this might furnish an anatomical basis for a life-long neurasthenia. He suggested as a possible analogy of such an anatomical variation, the well-known variation in the length of the intestinal tract. As the individual with only twenty-eight or thirty feet of intestines might be unable to appropriate sufficient food for the requirements of the tissues and so be a weakling all his life, so the man with forty feet or more, would die from gout because of his ability to digest excessive quantities of food. So the individual with "smallness of circulation" might suffer through life as a neurasthenic because of the inability of the arteries to carry sufficient nourishment to supply the requirements of the tissues.

Dr. Zentmayer referred to a case of monocular congenital tortuosity of the veins seen in a young man. He considered that these cases were in particular apt to give the impression of being due to some acquired condition. On seeing this patient after a lapse of three years this was his thought until reference to the case history showed that the condition had been noted at the time of the first visit.

Dr. Zentmayer referred to a case of bilateral tortuosity of the vessels seen first about fifteen years ago. He had had the patient call at his office this morning to confirm his first view of the case and found that there had been no change. The vessels were almost as tortuous as in Dr. de Schweinitz's case. Those distributed to the nasal fundus showed the peculiarity in a most marked degree.

Dr. Langdon stated that he had seen a case in which the whole retinal circulation was unusually small, the patient being neurasthenic and under the care of Dr. Weir Mitchell for some acute mental condition.

Dr. Randall said he had not seen such pigmented exit of a vessel from the disk. He recalled having sketched, thirty years ago, for Dr. Risley much such a case of very tortuous retinal vessels in a boy, presenting only a considerable hypermetropia, much like the eye-grounds exhibited by Stephen Mackenzie in the Ophthalmological Society of the United Kingdom (*Transactions*, 1884.

iv, 152). He had not found his original drawings of this and other cases; but showed an extreme instance of looping of some of the vessels in one of his patients (Fig. 136, *American Text-book of Eye, Ear, Nose and Throat*).

Tuberculous Cyclitis and Choroiditis.

Dr. S. Lewis Ziegler presented a case of *Tuberculous Cyclitis and Choroiditis* resulting in complicated cataract. The patient, a female, aged twenty-seven years, had passed through many recurrent attacks of uveitis and hyalitis before the tuberculous nature of the lesion was suspected. A diagnostic dose of Koch's old tuberculin was followed by a marked local and systemic reaction. A typical tubercle of the ciliary body could be distinctly seen in the upper nasal quadrant. The eyes became quiet after 20 injections, but the ciliary disturbance ultimately resulted in cataract. The opaque lens in the right eye was subsequently removed and a typical V-shaped iridotomy was recently performed. Vision with the correcting lens is 20/200 and J 6. No evidence of the ciliary lesion can now be seen, but a pronounced crater-like excavation on the temporal side of the fundus marks the site of a former tubercle of the choroid. The vitreous debris seems to have been absorbed. The left eye is now quiet and will be operated upon later.

Dr. Ziegler also presented a youth with Tuberculous Cyclitis, Complicated by Internal Keratitis, which closely resembled a luetic lesion. Although there was considerable evidence pointing to hereditary syphilis and the family history revealed similar lesions among his relatives, a continuous course of mercurial injections given in another city, for about nine months, did not yield much improvement. The Wasserman reaction was faintly positive. Donovan's solution was given hypodermically for several weeks with no result. The differential diagnosis was chiefly based upon the negative influence of mercurials after nearly a year's trial, and the positive reaction to test injections of Koch's old tuberculin. These injections were continued once a week, until ten were given, the last dose reaching 25 mgrms., and not being followed by any reaction. The night sweats were controlled by picROTOXIN. He has steadily improved in health and weight, the dense corneal infiltration is decreasing, the periphery is clearing and the light perception has greatly improved. It is possible that the malnutrition has involved the lens and made it opaque. While the presence of a tuberculous lesion has been positively demonstrated, there is still a suspicion

that the origin may have been a mixed one. (An intravenous injection of arsenobenzol has since been given, with negative result.)

Interstitial Keratitis; Salvarsan.

Dr. Ziegler showed a second case of Interstitial Keratitis, which was a typical example of hereditary lues in a boy, aged nine years. The Wassermann reaction was a strong plus 4. Through the kindness of Dr. Judson Daland an injection of arsenobenzol, 0.5 gram in 15 c. c. of solution was made in the gluteal muscles. There was marked cellulitis with pain, the temperature rose to 102° and remained above normal for one week. The ocular improvement was noticeable but did not meet expectations. One month later the Wassermann reaction still remained plus 4. An intravenous injection of 0.3 gram was given, following which the improvement was marked and rapid. In a month the Wasserman had fallen to a feeble plus 1, all local symptoms had disappeared, the corneal haze was clearing and the vision had risen from nil to 6/200. So far he has had no other treatment. As the arsenobenzol has thoroughly controlled the acute, destructive lesion he will now be placed under the usual specific treatment and sent home with orders to report again for another Wassermann at the end of two months.

Discussing Dr. Ziegler's paper, Dr. de Schweinitz described a patient with double interstitial keratitis, notched teeth, and positive Wasserman reaction, vision being reduced to hand movements at 1 meter, who had been given 3 injections of salvarsan at intervals of a month, the vision having greatly improved, so that now it is 6/22 in one and 6/30 in the other eye, and the accompanying cyclitis has disappeared, and apparently the interstitial deposits are much thinner. On the days between the injections large doses of iodide of potash had been administered. Prior to the use of the salvarsan, iodides and mercury had been given freely without controlling the disease for a period of nearly six months. He also described the effect of salvarsan in dissipating the lesions of an iritis papulosa (one large and two smaller iris syphilids at the pupil margin). They disappeared in less than two weeks. This patient also, at the request of Drs. Siter and Uhle, who gave the injections, had received large doses of iodide of potash. Dr. de Schweinitz spoke of the advantages and reasons for combining the effect of the two remedies.

Dr. Posey referred to a case of specific uveitis in which he had observed most gratifying results following the use of salvarsan. The

inflammation had been of several years' standing and had occurred in the eyes of a woman the subject of acquired syphilis. When first seen, vision was reduced to counting fingers at one-half a meter in each eye. The irides in both eyes were plastered down to the lenses, the corneae were steamy and the tension was markedly elevated. Potassium iodide and mercury and all forms of local treatment had failed to make any impression. Forty-eight hours after an intravenous injection of salvarsan, vision rose and the local signs of inflammation decreased rapidly. About ten days later, however, recrudescence of the acute symptoms occurred, a subsidence of which promptly followed a second injection of salvarsan. Dr. Posey stated that he considered that without the beneficial action from the salvarsan, both eyes would have been surely lost.

Secondary Glaucoma; High Frequency Current.

Dr. S. D. Risley presented for study a woman, aged thirty-five years, who had consulted him on February 20, 1911, with Secondary Glaucoma, the balls being stony hard—the result of recurrent iritis, possibly of rheumatic origin. There was no perception of light in the right eye, and doubtful perception in the left. There was a complete annular synechia in both eyes. In the right an atrophic iris, in the left iris bombé. Two weeks before, she claimed that she had been able to read and thread her needle with the left eye. She had severe pain in the eyes and head. Before giving a hopeless prognosis she was subjected to the high frequency current for ten minutes over the closed lids of each eye. The pain was immediately relieved, the tension reduced to $+2$ and the perception of light greatly increased. She was then admitted to the Wills Hospital and an iridectomy performed, under general anesthesia, on both eyes at the same sitting. Convalescence was uneventful, but on the second day the vision rose to counting fingers at two feet with the left eye and the ability to take candle field with the right. The daily application of the high frequency current was followed by a steadily improving vision and increase of the field in the left eye. The tension in the right eye was subnormal, in the left normal. She could see her way about the ward unaided, but stumbled over chairs because of entire absence of the field below the horizontal line. Dr. Risley presented the case as interesting from the standpoint of prognosis, which at first he was inclined to regard as hopeless and would have dismissed as such but for the signal effect of the high frequency current in relieving pain and tension and in increasing the perception of light.

Dr. J. Norman Risley related his experience with the high frequency current, in a case of an acute attack of secondary glaucoma, in which the eyeball was stony hard and the congestion and injection was so great that no absorption of medicines applied locally could take place and in which the pain was so excruciating that the patient cried out. After fifteen or twenty minutes' application of the high frequency current, administered through a vacuum electrode directly to the eyeball through the closed lids, the pain was markedly relieved and the congestion very much diminished and tension decidedly lower. Later the patient was admitted to the Wills Hospital where the eyeball was enucleated.

Dr. Risley asked the Fellows what their experience had been in the treatment of uveitis with floating opacities, with the high frequency current. He had not seen much absorption of the vitreous opacities occur or any definite improvement in the condition, though all the patients had claimed improvement in vision.

Dr. Sweet's experience in the use of the high frequency current in the relief of pain was similar to that mentioned by Dr. Risley. He had also employed the current in cases of optic atrophy, and in two instances, one of retinitis pigmentosa and one of atrophy from probable lead poisoning, there was an apparent increase in the size of the visual field.

Dr. de Schweinitz gave his experience with high frequency currents in the treatment of certain types of optic nerve atrophy: (1) Optic nerve atrophy of tabes dorsalis; (2) the optic nerve atrophy type of tabes dorsalis; (3) postretrobulbar neuritis atrophy. Some of the patients had expressed satisfaction with the result, but Dr. de Schweinitz had not been able to notice any distinct visual improvement, although certainly in one case, there was during the period in which the currents were used a widening of the field of vision. He had, like Dr. Risley, observed a few times relief from pain in uveal tract diseases after their application, but had not tried them to reduce the tension of glaucoma, except that after Turc's observations on this subject had been published in 1906, he had made a few indifferent trials of the currents in chronic glaucoma. He had not, however, used them in such a case as had been reported by Dr. Risley, and thought his results should stimulate further trial of them under such conditions. He had tried their effects a few times in eyes with retinal hemorrhages and vitreous opacities, but had not observed any amelioration of the conditions.

Dr. S. D. Risley, in closing the discussion said the psychical element in electrical treatment must always be considered; it, like infinitesimal dosage, Christian Science et al., had a peculiar fascination for some minds. He was not in the least inclined to be dogmatic in urging the value of the high frequency current or any other as a curative agent in any form of disease of the eyes. That it would promptly reduce tension and so relieve pain in glaucomatous eyes he had, however, frequently demonstrated. He had always been in some sense a doubting Thomas as to the efficacy of any form of electricity in the treatment of ocular affections. In the treatment, for example, of optic atrophy by negative galvanism or by the high frequency apparatus he had so often failed to demonstrate by objective methods any improvement even when his patients insisted upon marked improvement by the daily applications. He thought it extremely difficult to differentiate the psychological from physical results. It could not, however, be gainsaid that many patients are greatly encouraged and are willing to persist in the treatment because of improvement, either fancied or real.

He had not seen vitreous opacities disappear entirely under electrical treatment, but he had seen the diseases of the uveal tract improve and the acuity of vision rise under the persistent application of both the high frequency current and negative galvanism.

For explanation of such results he thought it might be due to the stimulation of the lymph currents and the circulation of the blood stream through the affected tissues, leading to improved nutrition. Whether this was produced by the electric current *per se* or by a fine vibratory impulse was open to question. He had failed to secure corresponding results by other vibratory methods or by massage.

T. B. HOLLOWAY, M. D., Clerk.

SECTION ON OPHTHALMOLOGY.

College of Physicians of Philadelphia.

Meeting April 20, 1911. Dr. William M. Sweet, Chairman.
Presiding.

Cicatricial Ectropion.

Dr. Harbridge (by invitation) exhibited a case the result of plastic operation for Cicatricial Ectropion following burns of the two lower and left upper lids. The case was first seen at the Chester Hospital, in April, 1908. One year was allowed to elapse following the original injury, so that full contraction of the scar tissue might take place. At the expiration of this time there was

a complete eversion of the two lower lids and a drawing up and out of the left upper lid, the patient being wholly unable to cover the globes and could only moisten the cornea by turning them markedly upward. In March, 1909, a Thiersch graft, taken from the arm was applied to the denuded surface of the right lower lid after first separating the scar tissue and stitching the border of the lid above to the supraorbital ridge: subsequently the other lids were treated in a similar manner at intervals of two months. Practically two years having elapsed without any shrinkage taking place the results may be recorded as permanently successful.

Probable Ring Abscess of the Cornea.

Dr. Harbridge (by invitation) also exhibited a baby, female, aged three weeks when exhibited; first seen twenty hours after birth. The right eye presented an infiltration of the entire corneæ except a small area opposite the pupillary space, the deeper layers being more particularly involved and the upper portion permeated by fine bloodvessels. There was present ciliary injection and a well-marked tarsal and bulbar conjunctival congestion, but no discharge of any kind. A tentative diagnosis of Ring Abscess of the Cornea was made. The case is to be reported more fully later.

Dr. Holloway stated that inasmuch as the cornea in this case appeared to be vascularized the condition could be regarded as being dependent upon a true inflammation rather than due to the result of faulty development. Von Hippel, reported a parenchymatous inflammation of the cornea that was observed in a six-day-old infant and which was associated with a bilateral coloboma of the choroid. A few years ago L. W. Callan referred to an interesting case in a baby a few days old. Here both corneæ were almost completely opaque, but under the use of dionin the opacities rapidly became less, and when the infant was about a year old the corneæ were almost clear. As there was no vascularization of the cornea in this case, Callan regarded the condition as due to defective development.

Dr. Posey said that he had once been called to see a baby but a few days old whose right cornea was quite opaque throughout, that of the fellow eye being clear. No forceps had been used, and there was nothing in the history which would account for the condition.

Dr. Zentmayer said that about two years ago there was brought to him, at Wills Hospital, an infant aged about three weeks, with bilateral densely hazed corneæ. There were no inflammatory symptoms. The condition had been present since birth. It was unin-

fluenced by treatment which had been persisted in up to the time he last saw it when the child was about six months old.

Dermoid Cyst.

Dr. Shannon presented a case of Dermoid Cyst of the conjunctiva in a young colored boy, aged fourteen years. It was of a grayish-white color, situated at the outer limbus of the cornea, partly on the cornea and partly on the conjunctiva, about 6 mm. long, 3 mm. wide, with an elevation of 2.5 mm. The surface of the tumor was dry and epidermoid, presenting in its center an umbilication from which projected two cilia. No other congenital anomalies so frequently found in connection with these conditions were discovered. The growth, as far as the patient could tell, had not increased in size for several years. It occasioned him no inconvenience.

Rupture of Choroid.

Dr. J. Norman Risley exhibited a patient who had been struck by a snowball in the left eye two months ago. There was paralysis of the iris and an extensive sickle-shaped rupture of the choroid, extending from a point at the upper margin of the nerve and 8 mm. to the temporal side downward to a point about the same distance below and to the nasal side of the nerve. There was also a smaller lozenge-shaped rupture between the nerve and upper part of the large rupture. There was extensive hemorrhagic choroiditis and now beginning atrophy at the temporal half of the nerve.

Syphilitic Tarsitis; Salvarsan.

After briefly alluding to the diffuse and circumscribed (usually non-inflammatory) varieties of tertiary syphilitic tarsitis, as described by V. Michel and others, Dr. A. C. Santter related the history of a case of early, diffuse (probably gummatous) infiltration of the tarsus and adjacent glandular tissue in a colored man, aged twenty-six years, the victim of a malignant syphilitic infection.

The patient first visited the Eye Dispensary of the Pennsylvania Hospital, service of Dr. William T. Shoemaker, on December 2, 1910, about ten weeks after the appearance of the primary sore, for treatment of what seemed to be chalazion in the left lower lid. An incision was followed by some bleeding but by no discharge of secretion. Duration four weeks.

Lesions then successively involved the upper left and the right lower lids. While in the lower lids the swellings resembled chalazia, in the left upper lid a diffuse inflammatory swelling occurred, as-

sociated with some pain and tenderness and preauricular glandular enlargement. The conjunctival surface of this lid presented shallow ulcerations, a larger marginal ulcer and a number of subconjunctival lardaceous infiltrations. The patient had been on mercurial inunctions continuously for the past three months and on March 18 a slight improvement was noted in the condition of the upper lid. Three days later an intravenous injection of salvarsan was administered followed by a rapid retrogression of all lid lesions and clearing up of the papular and rupial skin eruptions.

At the present time examination of the left upper lid shows a slight marginal swelling of the tarsus with considerable induration, also cicatrices in the tarsal conjunctiva and a roughened, needle-stuck area, devoid of cilia at the site of the former marginal ulcer. The other lids appear normal.

The Strabismus Hook in Lacrymal Sac Operations.

Dr. Edward A. Shumway discussed the various methods which have been proposed to outline the lacrymal sac, during its extirpation, including the injection of melted or cold paraffin, emulsion of dental plaster, starch colored with iodine, and spermaceti, and packing the sac with absorbent cotton through an incision in the anterior wall. Most of these methods were bothersome, required special apparatus, or delayed the operation. During the past six months he had used the strabismus hook with satisfaction for this purpose. After the incision through the skin and dissection through the superficial fascia and muscle, the hook was inserted through the canaliculus into the sac, and when turned forward the point could be readily seen and felt in the wound. The subsequent dissection was much easier, as the anterior wall was kept tense by the projecting point. The advantages claimed were that no special apparatus was required, there was no danger of rupture of the sac wall by the material injected, the wound speculum could be reinserted with the hook in position, and there was no distortion of the tissues in the area of operation. Dr. Shumway showed also a special knife, made by grinding off the point of a Graefe cataract knife until the blade was about 20 mm. long. This had proved a very useful instrument in dissection, and especially for loosening the sac from its attachments to the periosteum, as the blunt point could be introduced into the fossa on either side, and when the sac was entirely freed, it could be severed above and below by the cutting edge of the same instrument.

Dr. G. E. de Schweinitz said that he had not found it necessary

to inject the sac with paraffin or other substances in his operations, but had almost always been able to remove it without difficulty. He was, however, greatly impressed with the value of Dr. Shumway's suggestion, and had found a strabismus hook of the greatest possible use in locating the sac.

Dr. Posey said that since he had strictly followed Mellor's method in the removal of the lacrymal sac, he had but little difficulty with the operation and there was practically no hemorrhage. The landmarks for the location of the sac which he always sought for were the internal palpebral ligament and the inner margin of the orbit, as they at once determined the location of the top of the sac and of its inner wall. The only difficulty remaining was the separation of the outer wall from the surrounding tissues, and he thought Dr. Shumway's suggestion would be of help at that time. He cautioned against perforating the sac with the needle of the Pravaz syringe when injecting the solution of novocaine and adrenaline, as he had several times been somewhat embarrassed in the removal of the sac by this accident.

Small Round-Cell Sarcoma of Sheath of Optic Nerve.

Dr. Posey gave the detailed notes of a case of a growth of this nature which he had removed from a female, aged fifty-three years, two years previously. The diagnosis had been obscured by disease of the ethmoidal and sphenoidal sinuses, but when the complete evacuation of the contents of these sinuses and their drainage had failed to relieve the proptosis, the case's true nature was suspicioned and a Krönlein procedure done with a view to removing a tumor from the apex of the orbit. The proptosis was directly forward and was accompanied by a diffuse orbital cellulitis. There was no optic neuritis though the retinal veins were somewhat dilated. Vision equalled 5/15. Field for form and color was slightly contracted.

The tumor, which was removed without difficulty by the Krönlein procedure, consisted of a smooth and uniform swelling around the optic nerve, and gave the impression of a pyriform dilatation of the nerve directly posterior to the globe. In addition to this swelling, there was also a distinct mass about the size of a bean up and in from the nerve but not apparently connected with it. Judging the growth to be of a sarcomatous nature, the globe was enucleated and the greater part of the contents of the orbit exenterated. Healing was prompt and there was no recurrence a year after the operation.

Pathological examination of the growth of Dr. Allen J. Smith

showed it to be a small round-cell sarcoma growing in the outer portion of the sheath of the nerve, the tumor dissecting the fibrous framework of the sheath in such a way that the dense fibrous tissue of the structure formed the general framework of the growth.

Dr. Jas. A. Kelly examined the growth, but considered it to be an infective granuloma, probably secondary to an acute infection in the region of the orbit, or possibly of a specific nature.

Dr. Posey said that Parsons had only been able to find 18 cases of extradural tumor of the optic nerve, and of these 18, 12 only were really true examples of primary extradural tumors. Nine of these were endotheliomata. Dr. Posey said that Parsons doubted if intradural tumors of the optic nerve really spring from the optic nerve itself, believing that all tumors of the optic nerve, with the exception of the true gliomata, arise from one or other of the nerve sheaths.

Dr. Shumway detailed the history of a boy with an orbital growth situated below the eyeball, which he had recently removed by an incision through the lower lid. The primary result had been good, the exophthalmos amounting to 14 mm. had disappeared, and vision had risen to from 6/30 to 6/7.5. The report of the microscopic examination had not been received. Commenting on the conflicting diagnosis of the pathologists in Dr. Posey's case, Dr. Shumway referred to the difficulty of distinguishing at times between round-cell sarcomata, lymphomata, and various inflammatory conditions, and thought that some of the cases of unilateral growths, whose removal was not followed by recurrence might be classified under the head of pseudotumors, as had been done by Birch-Hirschfeld in his article on diseases of the orbit in the *Graefe-Saemisch Handbuch*. The reports of such cases, and the good result in a recent case operated on by Dr. de Schweinitz at the University Hospital, in which there had been no recurrence, although the pathological diagnosis had been sarcoma, had induced Dr. Shumway to be conservative, in the present instance, and not to sacrifice at once an eye with good vision.

Dr. Sweet referred to a case of sarcoma of the orbit in a healthy young man, in which there had been no return of the growth three years after complete exenteration of the orbit, although at the operation there was found caries of the superior wall of the orbit and perforation of the dura. Röntgen ray treatment had been employed for a long period, and the patient is at present in perfect health.

Dr. Hansell stated that the first important consideration in the management of orbital tumors is the diagnosis. As an illustration of this he stated briefly a recent experience. A colored woman had the usual sign of tumor: gradually advancing proptosis, limitation of movement, and frequent, prolonged pain of moderate severity. An incision was made through the lid just below the orbital border, and the underlying fascia and muscles carefully dissected. A dense fibrous membrane, which was thought to be capsule of a sarcoma, was opened after vain attempts to determine its limitations. Several ounces of thin greenish-yellow pus poured out from the opening. After thorough expression and cleansing it was found that a large communication through an area of necrosed bone, connected the orbit with the frontal sinus. The membrane, mistaken for the capsule, was the orbital periosteum which had been pushed downward by the accumulation of pus. Subsequently drainage was established through the nose by Dr. Fielding Lewis, who has the patient still under treatment, and the eye recovered almost its normal position.

Dr. Posey agreed with Dr. Hansell that the diagnosis of orbital tumors was generally most difficult and particularly between affections of the sinuses and neoplasms of the orbit. The presence of proptosis always awakened in his mind the possibility of sinus disease, and every case was subjected to a searching rhinological examination. As in the case reported by him, however, the report of the rhinologist often failed to be conclusive, and he referred to another instance where a mucocele of the cells presented all the characteristics of an orbital sarcoma.

Anomalous Condition of Retinal Vessels.

Dr. Wm. Campbell Posey exhibited a water color sketch of a fundus in which the entire posterior portion was occupied by a mass of enormously dilated and convoluted retinal arteries and veins. Thick white lines accompanied both sets of vessels, probably the result of a previous perivasculitis, while small bright red arteries which apparently emerged from the hidden disk were doubtless of comparatively recent formation. The fundus in the fellow eye was normal. Both eyes were moderately hypermetropic. Vision in the affected eye equalled 5/9, in the fellow, 5/5. The field was considerably contracted to the nasal side and two round scotoma 10° in diameter occupied the temporal portion. Vision in the affected eye had been poor since birth, and as careful inquiry failed to reveal any cause which could have occasioned the change

in the fundus, and as the vessels in the fellow eye were normal, Dr. Posey was inclined to attribute the changes to a congenital malformation, probably of the nature of a varix.

Ophthalmodiaphanoscope of Hertz.

Dr. Howard F. Hansell exhibited the *Ophthalmodiaphanoscope of Hertz* and demonstrated its value on a patient in illuminating the sinuses of the face, including the orbit. The instrument consists essentially of a metal filament lamp surrounded by a water jacket through which fresh water is constantly flowing. The water may be obtained from the street service or from a large glass bell adjusted on a stand; passes around the lamp, and is emptied into a sink connected with the house drainage or into a bucket.

The lamp is 80-candle power, increased to about 100-candle power by a mirror, is cylindrical and may be readily introduced and held by the patient far back in the mouth.

The light starting at the pharynx reaches the fundus from the posterior orbit and travels through it and the eye to the observer's eye, disclosing at once an obstruction in the antrums, in the anterior sphenoidal cells, in the anterior ethmoidal cells, and in the orbit.

It is also claimed by Hertz to display most satisfactorily diseases of the fundus. Dr. Hansell has found its use in the diagnosis or study of fundus disease inferior to the ophthalmoscope. He is enthusiastic in the great advantage it possesses over all other instruments of trans-illumination in detecting diseases of the sinuses, tumors in the orbit, thickening of the bones of the floor of the orbit, and tumors within the eyeball. He reports a number of cases in which he was able to determine instantly and with certainty the presence, or absence, of obstructing disease in the orbit, of intra-ocular tumors and of disease of the frontal sinus.

It is most valuable in clearing up the etiology of retinal detachment and is more useful than any other instrument for trans-illumination because it shows obstructions in the posterior as well as the anterior half of the ball.

Some Cases Illustrating Intraocular Lesions Following Blows Upon the Eye.

Dr. G. E. de Schweinitz reported the following cases:

Case I.—*A Traumatic Fissure of the Choroid Followed One Year Later by Extensive Massive Exudation.* The injured eye, the right one, was struck by a piece of wood, the immediate effect be-

ing two somewhat irregularly shaped fissures in the choroid in the temporal region, surrounded by a few scattered retinal hemorrhages, reducing the vision to 6/22. One year later the patient reappeared with the entire macular area covered with a greenish-white exudation $4\frac{1}{2}$ disks' diameter in breadth and nearly 3 disks' diameter in width, elevated 6 D. above the level of the eyeground, whitish in its center, greenish on its margin, and dotted here and there with delicate incrustations of pigment; while on its surface and surrounding it were numerous hemorrhages, and on some of the smaller vessels aneurysmal dilatations. He compared this lesion with the so-called massive retinal exudation described by Coats, but thought that inasmuch as the process had begun in the choroid, it was more likely similar to those lesions which have sometimes been caused by indirect injury of the eye, for example, by the passage of a bullet through the orbit, where, with ruptures of the choroid and retina, hemorrhage had taken place between these two structures and between the retina and vitreous, resulting in a plastic inflammation, with the production of layers of laminated fibrous tissue between the choroid and retina, a condition of affairs, for instance, as has been described by Nettleship.

Case II.—*Traumatic Detachment of the Inferior Portion of the Retina Sharply Bounded by a Line of Pigmented Chorioretinitis.* The detachment was seen nine months after the injury had occurred, which happened during a game of football, the right eye being affected, the refraction hyperopic. The lower half of the retina was detached, but the separation did not extend above the level of the lower border of the optic nerve, and the entire upper border of the detachment was sharply limited by a long striation about twice the width of a retinal vein, bounded by pigment, and terminating in the nasal half of the eye-ground in a patch of pigmented retinochorioiditis. A smaller pigmented striation had been formed at an acute angle with the other. Dr. de Schweinitz pointed out how this line of chorioretinitis had pinned down the detached retina and prevented its extension, and in connection with it he discussed the so-called retinitis striata, a disease which has been ascribed to the metamorphosis of retinal hemorrhages, but which Caspar had interpreted as representing the final stage of spontaneously cured retinal detachment, and showed a water color illustrating one of these so-called retinal striations which he had observed in its formation during the subsidence of a spontaneous detachment of the retina in a myopic eye.

Case III.—*Chorioretinal Rupture with Extensive Retinal and Vitreous Hemorrhages Following the Blow of a Fist Upon the Eyeball.* The right eye was affected, and the ophthalmoscope revealed a large, irregularly shaped hemorrhage, beginning at the outer margin of the disk and extending to the nasal side about $\frac{1}{2}$ disk's diameter, from whence it passed upward and above the disk for another disk's diameter. From the main body curious knob-like protuberances of hemorrhagic extravasation were visible, while finer scattered hemorrhages existed above the disk and between it and this mass of hemorrhagic exudation. From the lower end of the larger hemorrhage a long black mass protruded forward into the vitreous, and to the temporal side of this cord-like extension, as well as below the disk, there was a large area of drop-like hemorrhages banked up especially along the sweep of the inferior temporal vein. With one branch of this vein a large sac-like hemorrhage was connected. Up and in from the first described hemorrhage a large area of greenish-white edema was visible. This covered what later proved to be an extensive chorioretinal rupture which extended in this direction and beneath the previously described largest hemorrhage. The vitreous was cloudy and thick blood-clots floated through it. The ultimate result was excellent, a vision of 6-9 having been secured.

Case IV.—*Unusual Exudation Covering the Head of the Optic Nerve Following a Blow with a Stick.* The patient, aged nineteen years, was examined twelve years after the accident. The eye was totally blind and divergent. The media were clear, both sets of vessels and the entire area of the disk, that is to say, the surface of the papilla and some of the region beyond it was occupied by a greenish-white tissue, probably exudative in character, which was fringed with a collar of pigment, more produced to the temporal side than elsewhere. From the margin of this greenish-white exudation the vessels were seen to emerge in such a manner that the appearance was exactly as if the greenish-white exudation represented a very large atrophic papilla, save only that the vessels instead of entering and emerging at the porus found their positions at the margin of the disk. The eye was myopic and the exudation not much elevated above the level of the fundus.

Anomalous Excavation of the Optic Disk.

Dr. G. E. de Schweinitz exhibited a drawing illustrating the fundus appearances of the right eye of a colored child, aged fourteen years. The vision after the correction of a hyperopic astig-

matism was 6-7.5, in spite of some scars the result of a former phlyctenular keratitis. The upper half of the disk contained a large, deep cup, about—3 D. From beneath the upper margin of this cup the retinal vessels proceeded, that is to say, the arteries passed out and the veins entered, exactly as they would beneath the margin of a glaucomatous cup, while the lower vessels acted in like manner, except that the edge of the cup was not so sharply marked as the upper one. In other respects the distribution of the vessels was practically normal.

Dr. de Schweinitz briefly discussed the various anomalous excavations of the optic nerve, and pointed out that except that it was somewhat smaller in size and had a somewhat different situation, the excavation somewhat resembled the so-called colobomatous excavation of the papilla, particularly as it has been figured by Adolf Szili.

T. B. HOLLOWAY, M.D.,

Clerk.

CORRESPONDENCE.

The Attachment of an Advanced Ocular Muscle.

July 1, 1911.

Editor Ophthalmic Record,

Dear Sir:—In answer to Dr. Ellett's letter in the May Record, I beg leave to say a few words, not in the spirit of controversy, but in order to withdraw a statement which was made in my communication to the Record, December, 1910. It was as follows: "If the tendon becomes attached at the old insertion, it is certainly poor surgery to attempt to fasten it farther forward, and the advocates of advancement, to which class the writer belongs, are illogical and should practice tucking or resection."

The conclusion was based on a misunderstanding of Dr. Ellett's statement, which his subsequent article and correspondence have made clear. I understood him to say that the tendon became attached to the globe only at the old point of insertion, but if it forms a solid union all the way from the advanced point back to the old insertion, the anatomical conditions are very different from a resection.

Dr. Ellett says: "In common with many others, it seems to me better, therefore, to resect the muscle."*

A somewhat careful reading of Froelich's article shows that he is not among the "many others," but remains an enthusiastic advocate of advancements, having "performed the double operation a hundred times on different individuals without a single infection." Froelich's anatomical researches, which have led Dr. Ellett to prefer resection, seem to have had the opposite effect upon Froelich himself, who says:

"An advancement draws the eyeball deeper into the muscular funnel, but chiefly to one side. The muscle gains in elasticity as shown by Czermak and Judeich, and also in efficiency, as may frequently be demonstrated by observing that whereas before operation the cornea can approach the outer canthus only with difficulty, it can afterward do so with ease. Such an increase in strength is due not only to the shortening and increased elasticity of the muscle, but to the fact that it acts upon the correct and physiological point of insertion, a new insertion in the old place. In this respect

* Archives Ophthalmology 1905, p. 630.

† Ibid, p. 623.

‡ Archives Ophthalmology 1905, p. 627.

advancement approaches the ideal operation more nearly than resection. The advanced muscle also gains an enlarged sphere of action, *because its outlying attachments are brought forward with it*, and consequently do not act as restraints."

"This operation is a musculo-capsular advancement and is more efficient than advancement of either muscle or capsule alone."

DAVID W. WELLS.

Boston, Mass.

Book Reviews

A Treatise on Electrotherapie and Radiotherapie of the Eye, by Dr. A. Leprince, Bourges, France. Thirty-three illustrations. Published by Librairie Medicale et Scientifique, Jules Rosset, 1 Rue Casimir Delavigne, Paris, France.

The Cleveland Press of Chicago has in press Würdemann on "Injuries of the Eyes," the only modern work in English on this subject. This will be a book of about 900 pages, profusely illustrated, mostly by the author, with new and original pictures. Look for it about September 1st, 1911.

News Items.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. Harry Friedenwald of Baltimore has gone to Europe.

Dr. Joseph L. McCool has been appointed an assistant ophthalmologist to the Philadelphia General Hospital.

The Nashville City Hospital Commission has named Dr. Marvin M. Cullom for the department of eye, ear, nose and throat diseases.

Dr. Henry Clay Angell, for twenty years professor of ophthalmology in Boston University, died May 27, aged 81.

Dr. E. Hagnaner, one of the best known ophthalmologists of Valparaiso, Chili, died recently, aged 48.

Drs. J. F. Dickson and J. N. Coghlan of Portland, Ore., have moved to their new location in the Selling building.

Dr. Horace Bonner, Dayton, Ohio, was elected president of the Ohio State Medical Association at the recent meeting in Cleveland.

Professor Eversbusch of Munich, Germany, recently celebrated his twenty-fifth anniversary as professor of ophthalmology.

Dr. H. Maxwell Langdon, has received an appointment as one of the chiefs of the eye dispensary at the Presbyterian Hospital, Philadelphia.

Professor Manz, who died recently in Freiburg, Germany, had been associated with the eye clinic there since 1859, becoming director in 1868 and retiring in 1901.

Col. Henry Smith, formerly of Jullundur and now located at

Amnistsur, Punjab, India, is spending a three months' leave of absence in Europe.

Dr. J. Louis Borseh has received the post of ophthalmic surgeon to the Trinity Lodge Hospital in Paris, to fill the vacancy left by the death of Dr. Bull.

We regret to hear that Dr. A. J. Timberman of Columbus, Ohio, who has been making a world tour, sustained a severe injury while in India, where he assisted Col. Henry Smith at Amnistsru.

The Cincinnati board of health has received \$1,000 from the Cincinnati Society for the Welfare of the Blind, to employ a nurse to look after eye cases, especially ophthalmia neonatorum.

The American Association for the Conservation of Vision has been incorporated in New York and will investigate all the causes and conditions relating to blindness and impaired vision.

We regret to hear that Dr. Andrew MacPhail, editor of the Canadian Medical Journal (the organ of the Canadian Medical Association), has had a serious accident to his eyes through the explosion of a bottle of aerated water.

The Chicago Association for the Prevention of Blindness and Conservation of Vision was organized following the successful campaign of education at the Child Welfare Exhibit recently held in Chicago. Dr. Thomas A. Woodruff is chairman of the executive committee, the other members being Drs. Casey A. Wood, Frank Allport, Wm. H. Wilder, Willis O. Nance.

At the recent Child Welfare Exhibit held in Chicago a particularly interesting feature was the exhibit on the prevention of blindness arranged by a committee headed by Dr. Thomas A. Woodruff, needed legislation, prevention of ophthalmia neonatorum, the effects of accidents and poisons upon the eye, proper lighting, etc., were presented by means of charts, pictures, etc.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XX

CHICAGO, AUGUST, 1911

No. 7, New Series

REPORT OF THE PROCEEDINGS—SECTION ON OPHTHAL- MOLOGY AMERICAN MEDICAL ASSOCIATION, LOS ANGELES, CAL., JUNE, 1911

DR. ALBERT E. BULSON, JR.

FORT WAYNE, IND.

Chairman

Chairman's Address.—Comments and Suggestions Concern- ing the Welfare of the Section on Ophthalmology.

Dr. A. E. Bulson, Jr., M. D., Ft. Wayne, Ind.—The Chairman at the outset of his address referred to the fact that the Section was organized in 1879, being the first, with 100 members, and at present has 1,200, the total number of different members being 1,700 since its organization. He commended the plan of having the presession book because it gave the members opportunity to study the papers to be presented and to prepare for their discussion, which has added to their interest and promoted originality in the discussions. He thought it should be published and distributed to the members at least thirty days before the session. More of the discussions should be written. He believed in a three-day session for the Section and in brief programs, which would give opportunity for more discussion without tiring the members. Papers read by title should not be published. He advocated the plan of taking up some subject for discussion not on the program in case authors were not present and the time was not filled by the regular program, and to the presentation and demonstration of new instruments. Following out these ideas he made the following specific recommendations: That the entire program should consist of not over twenty-five papers; for any unfilled number on the program there might be substituted discussion on some subject to be selected; that the session end Thursday afternoon; that any program arranged for Friday be in the nature of clinics or social features; that no paper shall be approved for publication in *THE JOURNAL* unless actually read. In the selection of papers from the abundance offered he was in

favor of giving the young men of training a chance. Papers with demonstrations, charts, photographs, new instruments, etc. were to be encouraged, and clinics could be held with profit, as at St. Louis. He mildly criticized the programs of the Section on account of lack of original work and investigation. It was for this purpose that the Knapp Fund was established. He endorsed the plan of collective investigation, and approved the suggestion of a standard of qualifications of ophthalmologists. He quoted Dr. Hubbell on this point, and also from the paper of Dr. Edward Jackson to be read at the session. He believed it desirable to invite foreign guests, but that the Section should be conservative in its invitations. He urged every member to give something toward the Knapp fund and hoped the principal might become large enough so that the income would enable the carrying out of the plans already formed in that regard. He exhibited a design for the Knapp Fund Medal, which was approved later by the Section, and recommended that the Secretary include a circular when sending out his annual announcement calling attention to the Knapp Fund prizes. He called attention to the large number of prominent members of the Section who had died during the year.

Healing of Iridectomy Wounds and Thoughts on Its Influence on Glaucoma.

Dr. Adolf Alt, St. Louis, repeats his formerly published description of the changes in the irises of iridectomized rabbits. He illustrates the method of healing of the iris stump by first and second intention, according as the cut is made. He has since examined human eyes on which iridectomy had been performed and which came under his observation, and he reviews Henderson's statement that such injuries of the eyes never close. He takes up in a general way the theories of glaucoma and of the beneficial effect of iridectomy in this condition, and comes to the conclusion that it is probable that the excision of a piece of the iris is the essential part of the glaucoma operation, and to this may be added a certain amount of reopening of the filtration angle during the execution of the iridectomy, perhaps by a direct pull on the iris, by which a part of the peripheral iris adhesion may be loosened. The iridectomy therefore, instead of opening up new infiltration ways as Henderson thinks, really reduces the

secretions in the eye or alters their composition. How the excision of a piece of iris, which seems not to be a secreting membrane, brings about this result it is at present impossible to say.

Ophthalmology.

DISCUSSION. Dr. Hiram Woods, Baltimore.—None of us know just how an iridectomy relieves glaucoma—just why a satisfactory coloboma does not relieve in one case when a little hole does so in another; but such is the case. There is one class of cases of which I have seen three, about which I should like some information. In a way they may point out some of the effects of an iridectomy. I allude to the class of cases in which it is difficult to determine whether we have a primary or a secondary glaucoma to deal with. Maybe I can best illustrate it by giving some of the points from these three cases. One was a lady 65 years of age who came to see me on account of floating bodies in the vitreus. There were peripheral striations. The vision was 20/30. A drop of euphthalmine was put into the eye for diagnostic purposes and in half an hour she had an acute glaucoma. Under eserine it subsided. The patient did not live in Baltimore, and in few months went to see Dr. Risley in Philadelphia without my knowledge. He found the floating bodies. She didn't tell him of her experience in Baltimore and he used homatropin, and she turned up later with glaucoma. The visual field was not contracted beyond thirty degrees. I performed an iridectomy with the result that cataract ensued and the eye went out, with the typical fulminating symptoms.

Another woman had a quiescent glaucoma and a uveitis with floating bodies. She was iridectomized, with prompt development of an exudative chorioiditis and loss of the eye. The third case was in a woman aged 38 who was referred to me by a physician. She came with a glaucoma, but with a contracted pupil. The tension, however, was plus 2. Her field of vision was limited to 40° in the widest portion. The pupil contraction was due to eserine used by the other physician who referred the patient. I performed an iridectomy and found pigmented spots on the lens capsule showing that, in spite of no history, she had had iritis. The operation was not useful and her last state was worse than the first. On the other hand, seven years ago I had a man with

glaucoma and a black cataract. The other eye was lost. He recovered after operation 20/30 vision. There was something which took place in these cases through the vascular connection between the iris circulation, altered by the iridectomy, and the deeper uveal circulation. Dr. Alt says "something" happens. What was it?

Dr. Adolf Alt, St. Louis.—I do not know exactly how to answer Dr. Woods' question. Of course, the iridectomy has undoubtedly altered the circulatory apparatus in the eye, but why it should have produced an exudative chorioiditis I cannot exactly see, unless there was, perhaps, already a chorioiditis when the iridectomy was made. Such eyes go to the bad anyway.

The Significance of Non-Syphilitic Retinitis; Based on a Study of the Subsequent History of One Hundred and Eighty-seven Cases.

By Dr. F. T. Rogers, Providence, R. I.—In order to ascertain whether other than the albuminuric forms of retinitis are of as grave significance Dr. Rogers has made a study of 187 cases of retinitis occurring in private practice during the past twenty years. He has been accustomed to classify his cases under six heads: (1) retinal apoplexy due to rupture or diapedesis; (2) simple retinitis secondary to the above; (3) hemorrhagic retinitis with secondary hemorrhages; (4) albuminuric retinitis; (5) diabetic retinitis; (6) chorioretinitis. The underlying conditions are included in the following; viz. atheroma, vasculitis and perivasculitis, increased vascular tension, altered condition of the blood as in nephritis, glycosuria, etc., traumatism, and reflex disturbances. The statement of Porter that all cases of albuminuric retinitis occur in syphilitics is, Rogers says, amply disproved by his experience. He gives a number of tables analyzing his cases and sums up the conclusions as follows: 1. Three-quarters of all cases of hemorrhagic retinitis either terminate fatally within a few years or the patients suffer marked impairment of health. One patient died of diphtheria during an epidemic, but was suffering from Bright's disease, and her life would in any event have been of short duration. One died of rheumatism, four from diabetes, and of the two who died of tuberculosis, one certainly did not have the disease when seen, but she died suddenly while

returning from Europe, and the cause of her death was given as tuberculosis. With these exceptions, all deaths have been due to some disorder of the nervous or circulatory system, and all cases of impaired health are ascribed to the same conditions. 2. The existence of any form of hemorrhagic retinitis is suggestive of present or future disease of either the nervous or circulatory system. 3. The duration of life in albuminuric retinitis increases with the age of the patient, and the younger the patient the worse the prognosis in point of time. Two cases are reported which the author feels warranted in classifying as hemorrhagic retinitis from reflex nervous disturbance. Both occurred after, and apparently from, dental operations and recovered after the extraction of the tooth and the broken portion of the dental instrument which had been left in it. Another case specially illustrating the serious import of retinal hemorrhage is also reported.

DISCUSSION. Dr. W. H. Roberts, Pasadena.—Retinal hemorrhages from any cause, except possibly traumatism, are of grave import; not so much because of the local condition, as that they are, in the vast majority of cases, associated with serious diseases of the kidneys and cardio-vascular system. Dr. Rogers shows that taking all his cases of hemorrhagic retinitis nearly 50 per cent die inside of three years.

In the first year of the practice of my specialty, Mr. T. G.—aged 62—consulted me, suffering from a very severe albuminuric retinitis. His retina showed numerous scars from old hemorrhages, as well as recent ones. His urine demonstrated a chronic parenchymatous nephritis.

I gave an unfavorable prognosis of less than two years. He was referred to a general practitioner, who looked after his diet and mode of life, and his improvement was remarkable. He lived ten years. Long before his death his family practically ceased speaking to me because of my unfavorable prognosis.

I later saw Mrs. A. G., aged 56, whose retina showed old scars from hemorrhages; whose vision in one eye was down to counting fingers at three feet, and whose urine was loaded with albumen. She lived nearly seven years after having been placed on a proper régime. How long the retinas of these two patients

had been affected before I saw them it is impossible to say. Why should we try to figure a life expectancy in any case, when we cannot tell when the retinitis started, and even if we could what good would be accomplished.

I have had under constant observation for nearly ten years a lady with a tuberculous history, blind in one eye from retinal hemorrhages, and subsequent retinal detachment—later retinal hemorrhages and retinitis proliferans in the other eye—whose physical and mental condition is excellent, and who gives me every reason to believe she will live for years to come.

Mr. G. L. W. lived for eleven years after coming under observation for retinal hemorrhages from arteriosclerosis. Mrs. E. D. W. is in about the same condition today as when first seen six years ago, when her retina showed old scars, and fresh hemorrhages with albuminuria. Mr. H. B., aged 77, is still living, over five years after he came under my care for diabetic retinitis. These five cases from my records are reported to encourage us; first, to put forth every effort to help the unfortunate victims whose retinas show evidence of serious trouble there and elsewhere; second, that our prognoses may not be too gloomy; and third, that each case be considered separately without relation to any other, and that a careful line of treatment, with correct mode of life, be instituted.

Dr. Melville Black, Denver.—I can recall many patients who have been living from ten to fifteen years and who are seemingly well today who have had retinal hemorrhages. I remember some others who are beneath the sod, but they are comparatively few, and I believe that now with our improved method of handling these cases we need not necessarily give the patient such an unfavorable prognosis. Sometimes they live twenty years and fool us, and those I see around me who have grown gray in the practice of ophthalmology. I feel sure will be first to second the proposition that we should be very guarded in giving a time expectancy on life to our patients with retinal hemorrhage.

Dr. Wm. F. Mittendorf, New York.—I do not quite agree with all Dr. Rogers has said. I have seen quite a number of cases of retinal hemorrhage at the age of puberty in young girls, and also in boys, that have not terminated as fatally as Dr. Rogers thinks they are apt to do. Of course, these cases occurred long

before the taking of blood-pressures was done. I remember three cases. One consulted another doctor, the other was a young lady from West Virginia, whom I saw, and the other was a patient whom I see almost every day, who had these hemorrhages twenty or thirty years ago. Lately we have been taking blood-pressures where there is hemorrhage, and have come to the conclusion that blood-pressure has little to do with these hemorrhages. I have found patients with hemorrhage in which the blood-pressure was 135, and in those in whom the blood-pressure was 225 or more. In regard to the prospects for the future, I think that depends on the diseases that caused it—irregularity of the action of the heart, or rheumatism, or an atheromatous condition, naturally have their bearing, but a simple retinal hemorrhage I do not look on as very serious.

Dr. F. B. Tiffany, Kansas City, Mo.—Like Dr. Mittendorf in my experience in the last thirty years, I have had quite a number of cases of retinal hemorrhage from what we might call vicarious menstruation. Most of them have improved under treatment; none has died.

Dr. H. Woods, Baltimore.—Dr. Howard Kelly told me recently that he had never seen a case of vicarious menstruation and did not believe that such a thing existed. In the book published by Kelly & Noble it is stated that it is very doubtful if the so-called cases of vicarious menstruation will bear any investigation whatever; that in cases of menstrual disturbances—amenorrhea or dysmenorrhea—there is some underlying cause which can be ascertained. We want to be careful how we put down as etiologic influences concomitant conditions without going back to the ultimate cause. For instance, amenorrhea associated with hemorrhage could not be attributed to vicarious menstruation until you had discovered the cause of the amenorrhea, and if it is not local, you have got to go back to the blood examination or to the whole subject of the patient's metabolism before you can conclude just what it is.

Dr. DeWitt C. Bryant, Omaha.—Several years ago we had an epidemic of influenza in our own city in which there were quite a number of cases of retinitis following. A number had hemorrhage. Most of the patients who came under my care were not very old and went on to recovery without any serious trouble

following. I have seen a great many cases of hemorrhagic retinitis, most of them in people past middle life, but, as the essayist says, some of them occurred early. One was in my own brother who at the age of about 35 had hemorrhagic retinitis in both eyes. He entirely recovered. That was 18 years ago, and he has never had a recurrence. My experience is that death follows much sooner in patients past middle life than before that period.

Dr. Wm. Zentmayer, Philadelphia.—Dr. James Tyson, one of our highest authorities on renal diseases, stated that he was quite convinced that the prognosis in albuminuric retinitis held by ophthalmologists was too grave entirely; that patients lived a great deal longer than an average of two years, and he thought it ought to be corrected. My own experience is not very large, but on the whole I would think that the majority do not live much longer than two years. I have seen patients that lived longer. One patient had acute nephritis and numerous hemorrhages, and was under the care of Dr. Hare. He is living and it is now eleven years since his illness. He never had a subsequent attack and is apparently in the best of health.

Dr. F. T. Rogers, Providence.—I take exception to one or two criticisms of the paper. Dr. Roberts states that statistics cannot prove anything, implying that my statistics have been looked at from the standpoint that the disease has serious import, and then he reports five cases of exactly the opposite thing. If a report of twenty-five cases in which 50 per cent die in three years prove nothing, neither do five cases that live ten years prove anything. I wish to say that the conclusion I sought to draw was that the prognosis varies with the type of the disease. Conclusions drawn from albuminuric cases differ from those drawn from simple retinitis. The bad prognosis need not be given the patient, but to the friends, the family and the physician.

Treatment of Purulent Ophthalmia and Simple Means for Its Prevention in Infants.

Dr. M. D. Stevenson, Akron, Ohio, says that while the Neisser gonococcus is responsible for a large proportion, especially of the worst cases, of purulent ophthalmia, any pus-producing organism may cause it, and, contrary to the general belief, he does not believe that any except extremely virulent infections can quickly and successfully destroy normal corneal epithelium. Healthy

epithelium anywhere is a most effective barrier to infection. When corneal ulcer occurs it is due to the extreme virulence of the infection, the disturbance of nutrition from the swelling, to direct pressure or to the undrained injurious discharges, or to ordinary injuries and abrasions. The two last-mentioned causes and, to a lesser extent the second, may be forestalled if free drainage is secured without corneal injury. The policy of treatment should therefore be guided by four considerations—the careful, thorough use of proper antiseptics, efficient but not too irritating; watchful care over corneal and general nutrition; free drainage; and especially avoidance of even the slightest injuries to the delicate corneal epithelium. A bacteriologic examination of the discharge should be made as soon as possible, and, while he uses generally a 1 per cent nitrate of silver solution in virulent gonorrheal infections, a 2 per cent or even stronger solution for a few treatments, may be better. In certain mild non-gonorrheal infections 0.5 per cent is usually sufficient. The good results reported from the organic silver salts seem to him largely due to the greater care and lavish use of these feeble antiseptics than to their special virtues otherwise. They cannot be compared with nitrate of silver as antiseptics. He gives particular directions as to the applications of antiseptics to the eyes, insisting on their being thoroughly applied and separating the lids so that they will come into contact with all parts of the eye sac, due care being used in not allowing the lid retractors to touch the cornea and to avoid all injurious contact with its surface. After the lid retractors are removed good drainage can be secured by a few drops of liquid petrolatum applied to the lids or other bland ointment to prevent gumming of the lids. To be certain of good drainage the nurse should separate the lids every hour or two and reapply the ointment if necessary. Pus outside the eye sac can be wiped away, but no attempts should be made to remove it from within, as such attempts may cause abrasions. Treatment in adults is similar to that in infants. He insists nowadays that sufficient drainage may be secured by preventing gumming of the lid margins as described and that frequent irrigations are not so safe or necessary. The attention that should be given to a child's eyes immediately after birth is detailed. Nance claims that two-thirds of the cases of ophthalmia neonatorum are not due to the gono-

coccus but to other pathogenic organisms and any leukorrhea or other discharge on the part of the mothers may be infectious. The eye-lids are nearly always closed during birth, so any infectious germs are usually on the edges of the lids, and therefore a drop or two of the silver solution placed on the outer portion of the eye sac and swept across it by closing of the lids usually reaches all the germs. It is quite different after inflammation is established, and the eyes should be carefully watched to prevent postnatal infection. Stevenson insists on the importance of the prophylactic measures and the responsibility of physicians as regards infantile ophthalmia. The prophylactic properly used is never dangerous, and he thinks that too many members of the profession are negligent in this matter.

DISCUSSION. Dr. G. C. Savage, Nashville.—Maceration of the epithelial cells is one of the things we have to look after. If pus is allowed to remain in contact with epithelial cells and the infection is severe they will suffer destruction. Therefore frequent flushings of the eye are absolutely essential; not every hour, but every ten or fifteen minutes;—just as often as pus forms. Of course, we can destroy the epithelium by awkward use of the flushing and by instruments, but this ought not to be done. I do not think most of us will advise our nurses to use instruments to open the babies' eyes for flushing. Nitrate of silver is destructive of epithelium, more or less, in whatever strength you use it. I have not used a solution of nitrate of silver in any strength in an eye for I don't know how long. I have used protargol from the day of its introduction. I have never used argyrol. I use protargol 40 gr. to the ounce, associated with frequent cleansing, and with that mixture first given to the profession at San Francisco meeting of this Section seventeen years ago by Dr. Scott, of Cleveland. Such men as J. L. Thompson and others after that meeting found themselves so confident of the efficacy of that agent that they did not care so much for nitrate of silver. It is, hydrastin 2 gr., Tr. opium 30 drops (he used a dram), boric acid 20 gr., distilled water 1 ounce. Eight or 10 drops are put into the sac every hour or two during the twenty-four hours, associated with applications of protargol. With this combination I face these cases with confidence.

Dr. Adolf Alt, St. Louis.—I agree with Dr. Savage in the fact, that I have not used nitrate of silver for certainly not less than fifteen years—not since protargol came into use. But I do not use it so strong, but much oftener. A continuous bath of a weak solution of argyrol would be better yet. Argyrol in 25 per cent solution very frequently—every hour or half hour—it seems to me gives just as good results as we had before with the use of nitrate of silver, and it is infinitely more agreeable. The washing out of the sac with any other remedy besides, I think, is useless.

Dr. S. L. Ledbetter, Birmingham, Ala.—I was a little bit loath to take the position that nitrate of silver was bad because of the result of a discussion at Atlantic City several years ago in which the consensus of opinion was, that the nitrate of silver was probably the best of all. I have not used it for ten or fifteen years. I never lost a case except where I used the nitrate of silver. One swallow doesn't make a summer, but the experience of one man combined with that of another does help. I have used irrigation always. I instruct the nurse to use it as often as she sees any beads of pus between the lids. I believe if the pus is kept thoroughly washed away the bacillus is diluted to that extent that it does not become so virulent; and besides, I think the constant contact of pus with the cornea sometimes will produce an erosion, and wherever you get an erosion you will get a bad eye. By a little pressure on the upper and lower lids they evert themselves. I instruct the nurse to evert them in that way, wash them off, and repeat this eversion and washing a number of times, and you will find in a little while the folds are clean. Keep them clean in that way and use the argyrol or protargol and your case will do well.

Dr. William E. Briggs, Sacramento.—It was a revelation to me to hear the paper of Dr. Stevenson, because we have as a profession regarded it as a sort of religion that we must cleanse the eye frequently, and that any natural drainage would not be sufficient to remove the pus. The germs carried by the pus are the elements destroying the epithelium of the cornea. Now many of us have believed all our lives that if eyes are properly cared for from the beginning that none of them will be lost. I was taught that and I advocated it. When I saw an infant

with gonorrheal ophthalmia, if I found the cornea clear and normal I would say the eye would be saved. For twenty years in my practice I have used the nitrate of silver in all cases. Besides the nitrate I have had the patient's eye cleansed with some cleansing solution, either boric acid or permanganate of potash, something as unirritating as possible, and at times have used weak solutions of bichlorid of mercury, etc. I would want more men's experience that simple drainage would be sufficient before I would advocate it. When argyrol and protargol were advocated I began very religiously using these remedies, and I had very good results; but later, learning that they were not germicides and that their efficacy was doubted by many very good men I have gone back to the nitrate of silver, and, so far as I know, I have never lost a case that came to me with a clear cornea.

Dr. F. T. Rogers, Providence, R. I.—I cannot forbear saying a word for a drug that has done more to save blindness in children than all the argyrol and protargol, in the world; that is nitrate of silver. From the day it was introduced it has had its adherents. When I hear a man say that he has used argyrol and protargol without losing a case I feel that he probably hasn't treated many cases, particularly among the lower classes of people. Twenty-five years ago the use of simple vaselin in the lids was advocated and upwards of 200 cases without the loss of an eye were reported. I have come to believe firmly in cleanliness, and we cannot get it without lavage, and you cannot wash out the lids by simply everting them; you have to elevate them. I should not like to see a patient of mine treated with hydrastin.

Dr. Samuel Z. Shope, Harrisburg, Pa.—Dr. Stevenson quotes Dr. Edgar that the burden of the blame for blindness from ophthalmia neonatorum can be placed on the midwife. I investigated the question of ophthalmia neonatorum with reference to this point about five years ago, and my information corroborates that of Dr. Wood, presented in his paper in the Section at St. Louis last year; his figure was 77 per cent. My own is 75 per cent. It is certainly striking if correct, that half the cases of obstetrics are attended by midwives and that 75 per cent of blindness occurs in those cases. Dr. Stevenson points out the necessity of the use of a good prophylactic by statutory provision by one competent to use it. All the laws that have existed

in the states up to this time have given the midwife the right to use the prophylactic. In New York they have put it into her hands, the state furnishing it. Last year I drafted a bill and fought it through the legislature which covers the use of prophylactics, the essential part of which is found in section 10 of that act.

Dr. Stevenson has pointed out that some physicians of large experience have never had a case of this sort, and this fact was a source of the greatest opposition to my work in Pennsylvania. In order to overcome their lack of interest, I wrote an unsigned article which could be comprehended by every one, leaving out all technical language, and had it published in about 900 newspapers of Pennsylvania, in many of them as an editorial. Every legislator received one or more of these papers. I also sent to each physician a petition which should be signed by the leading laymen who elected the legislator in each district. The result was that the bill passed both houses unanimously and was signed by the Governor.

Dr. H. W. Woodruff, Joliet, Ill.—It seems to me that all cases of ophthalmia do not require the same treatment. I do not think anybody would use strong solutions of nitrate of silver in the moderate type of cases; but in cases in which the conjunctiva is greatly swollen and the discharge is profuse, certainly anything that will check that discharge in as short a space of time as possible without doing damage to the corneal epithelium is the treatment to use. Now I am satisfied that strong solutions of nitrate of silver will do that; but do not put it on the cornea. If it is put on the swollen conjunctiva and the excess removed before the lid is replaced there is absolutely no danger to the corneal epithelium, and in forty-eight hours there will be a marked lessening in the discharge. As to the use of argyrol—argyrol is absolutely harmless.

Dr. W. Zentmayer, Philadelphia.—I cannot help but think that Dr. Stevenson has exaggerated the danger of injury to the corneal epithelium from the use of solutions, but I do not think he has exaggerated the danger of such injuries. I myself, and most others in Philadelphia have long since discarded the use of protargol, and argyrol. We pin our faith to nitrate of silver, and the only cases of ophthalmia neonatorum due to the gonococcus

that do badly are the patients whose vitality is low. Dr. B. Alexander Randall in Philadelphia pointed out that the only cases in which there was danger of the loss of the cornea are those in which the child is marasmic or born before term and that has been my personal experience.

Dr. William F. Mittendorf, New York.—I agree with the last speaker that there are cases which will go along no matter what we do and that it depends on the condition of the patient. We have seen these cases fail in children with the best of care who have been marasmic; we have seen them in children after measles in which both corneas will slough. Instruments to go into the eye should not be entrusted to the hands of even an experienced nurse. I have been using the vaselin treatment, especially mixed with boric acid, a great deal in these cases. I think a layer of vaselin between the lids and on the ball is a great preventive and a preservative of the cornea. But the difficulty has been to introduce this vaselin in the proper way. I have had hard rubber applicators and instructed the nurse to use them carefully, and yet every now and then we would get a corneal ulcer from this cause. I have now adopted the plan of using the vaselin from one of the little collapsible tubes, and have the eye opened and closed a couple of times, and a layer of vaselin will spread over the eye-ball and protect it to a certain extent. You must use argyrol in 30 or 40 per cent in most cases.

Dr. D. W. Greene, Dayton, O.—There are other features in the treatment than the medical treatment. I am forcibly reminded of this by a case I saw some time ago which had passed through the hands of Walter Parker of Ann Arbor. A child had been born in the hospital. It developed ophthalmia neonatorum. A microscopic examination showed no gonococci. It was treated with zinc solution and recovered. The family afterward removed to Dayton. When the child was four weeks old it developed another inflammation of the eyes and came under my observation, and a microscopic examination revealed the gonococcus. This second inflammation had lasted ten days and there was sloughing of the cornea and both eyes were lost. The man immediately began to notify the authorities at Ann Arbor that the child had been neglected, that the disease was present at its birth, and that he would hold them responsible for it. Fortu-

nately I was able to assure the people at Ann Arbor that we had been able to find the gonococcus—not only found it, but cultivated it.

Dr. Edgar S. Thomson, New York.—It seems to me we must make a decided distinction in the treatment of ophthalmia between the neonatorum type and what might be called the adult type; this latter applies to anything older than six weeks or two months. The clinical course of the adult type is totally different, and we have to do with a very serious condition. The prognosis in the neonatorum type depends on how early we get them. I believe every case of the neonatorum type with proper treatment would be saved unless, as Dr. Zentmayer says, the child is marasmic. At the Manhattan Eye, Ear and Throat Hospital we never lose a case that comes in in time in which the child's general resistance and health are good. There are two very distinct actions of the secretions retained in the eye. One is the eroding action on the cornea and the other is the action on the gonococcus itself. The gonococcus multiplies much more rapidly in its own secretion. If the pus is allowed to remain a half hour it would be much more plentiful in smears, and we have therefore adopted the plan of cleansing the eye every fifteen minutes day and night. I am sure where we relax this regime the case runs much longer. We have used a large number of irrigating solutions, but have always come back to boric acid. The value of irrigations is in the mechanical effect of removing the secretion. I do not think we gain much in irrigation from so-called germicides at all. Derby of Boston demonstrated that argyrol is not *per se* a germicide in the test tube, but in the eye I have the impression that it does check secretion.

Dr. H. Woods, Baltimore.—I should like to defend nitrate of silver, but it does not need defense. It seems to me absolutely going back on the pathology and the experience of years to say that nitrate of silver is not the sheet-anchor in ophthalmia as truly as atropin in iritis. What I principally arise for is to ask unanimous consent for Dr. Alt to state some facts, new to me, with reference to argyrol and protargol. He has made some statements to me that are extremely interesting. I would ask unanimous consent for him to present these statements.

Dr. Adolf Alt, St. Louis.—What Dr. Woods refers to is

this! We do not know how the nitrate or the argyrol act. Schreiner has made some experiments to find out what the action is on the conjunctiva, and he believes that the leucocytes are acted upon by the irritant action of the solution and then produce a body which he calls luecin, and that is the active principle which kills the germs. The nitrate of silver is such an irritant. He has used sulphate of zinc in the same way, and they produce a new body, the lukein, from the leukocytes. In the last number of the *Ophthalmological Journal* there is an article in which a man reports his experience on these irritants and astringents, and to my astonishment he finds that they all cause a leukocytosis which lasts from two to ten hours, and that a solution of argyrol of 50 or even 25 per cent produces a leukocytosis which lasts eleven hours, and although some of the gentlemen say that argyrol is innocent and does no harm, and in the test-tube it is worth nothing, yet in conjunction with the juices of the conjunctiva and the eye-ball it certainly has an effect and a very decided one.

Dr. F. B. Tiffany, Kansas City.—I simply want to correct an impression that may have gone out from the statement of Dr. Rogers that more cases are saved by nitrate of silver than by any other treatment. On the other hand, more cases have been lost by nitrate of silver than by any other treatment. Years ago when we depended on the nitrate we cured a certain per cent—40 or 50. Since we have used protargol or argyrol we have cured a much larger percentage; Dr. Savage would say 75 per cent or more. Dr. Stanley of Boston will tell you that he has cured 100 per cent in nine years by the use of argyrol exclusively, and he has many cases.

Dr. Sherman Voorhees, Elmira, N. Y.—I have tried the Neisser serum in some cases with no result; but recently a doctor came to my office who had been treating cases of gonorrhea and had infected both his eyes. The cornea in one eye had become half necrotic and in the opposite eye there was considerable necrosis in the upper edge. I used in his case the nitrate twice a day with 50 per cent argyrol about once in two hours in connection with irrigation sufficient to keep the pus out of the eye. I gave this physician 50 million of Neisser serum every fourth day. It seemed to me from all the cases of ophthalmia that I

had treated that I should have lost this case. I lost one eye in this physician: but I believe also that I find more cases of ophthalmia neonatorum since physicians have used as a prophylactic argyrol than formerly when they used nitrate of silver. I believe this is explained by the fact that it is not so strongly germicidal, and that they depend on one application. As a prophylactic it should be used more than once as against the nitrate.

Dr. James W. May, Kansas City, Kan.—I should like to have Dr. Park Lewis of Buffalo answer a question, since we have had discussion as to the value of the nitrate and argyrol, as to what effect it will have on medical legislation proposed in various states and in the enforcement of legislation already enacted in which the Crede method is required.

Dr. F. Park Lewis, Buffalo.—In answer to Dr. May's question what I had in mind to say, was that we must distinguish very sharply between prophylaxis and treatment. That which is suitable for prophylaxis is not necessarily suitable for treatment. In all we have done we have followed the expression of the sentiment of the profession. In 1906 before making any suggestion whatever we got the opinions of at least 200 ophthalmologists and as many obstetricians as to the most desirable prophylactic. The opinion found was that there was none as effective in judicious hands as the 2 per cent Crede solution, which means one drop of a 2 per cent solution dropped from a glass rod on the cornea. It was feared, however, that in the hands of untrained midwives, and indeed in the hands of untrained physicians a 2 per cent solution would not be safe, and therefore it has been generally advised that the 1 per cent solution be used as a prophylactic for all official preparations sent out by the states. The question of treatment is not a matter with which the committee has concerned itself; but we must concern ourselves with it as ophthalmologists, because it has been found that the ordinary physician is by no means qualified to treat a case of ophthalmia neonatorum. From many sources have come reports of damage from its injudicious use.

Dr. A. E. Bulson, Jr., Ft. Wayne.—I was pleased to hear Dr. Lewis call attention to the consensus of opinion of American Ophthalmologists concerning the use of silver nitrate. I think

it would be a great pity if this Section should put its stamp of approval on any of the newer silver salts and its disapproval on the old and well-tried nitrate of silver in the treatment of ophthalmia neonatorum. We must take into consideration the fact, that we are dealing with a desperate disease, and it should be our purpose and our duty to use the most efficient means to prevent the destruction of eye-balls. Probably an overwhelming majority of those who have had the largest experience would place the most dependence on nitrate of silver combined with proper irrigation. I quite agree with Dr. Stevenson concerning the possibility of having trauma if due care is not observed, but I do not believe that with reasonable care the ordinary nurse or the ordinary physician is going to be guilty of producing trauma of the cornea by irrigation, and it seems to me that irrigation is absolutely necessary in the treatment of this disease.

Dr. Mark D. Stevenson, Akron, O.—Dr. Woods reminded me to again call the attention of the Section to the use of holocain and not cocain, which is an epithelial poison. So far as argyrol being harmless is concerned, some of the most remarked cases of argyrosis have occurred from its prolonged use in strong solution. Weak solutions of silver nitrate do not do this unless long continued. Personally I am inclined to agree with Dr. Jackson who, before this Section a few years ago advised against the use of silver more than once a day, and I have not advocated it more than once a day. My effort was to have every part of the conjunctival sac in contact with the weak silver solution, and in trained hands it can be done very safely. With regard to flushing, which seems to constitute the only difference of opinion, this formerly was also my sheet-anchor in the treatment. An abscess any where else the size of the eye and with an opening as large as that of the eye when the lids are not gummed together, gives perfect drainage. A little pus may collect in the fornices, but by opening the lids this rolls out. It is necessary, however, that the lids do not gum together. The poor mother and the ignorant mother can be very quickly trained to safely separate the lids and to drop a little oil on the margin of the lids, thus securing perfect drainage. I have treated quite a number of cases without any irrigation and never before had such good results. I was early disappointed with argyrol in other conditions. I be-

lieved that it did not compare with silver nitrate. Therefore, I used it, in practically none of these cases.

Vacuum Fixation of the Lens, a Flap Suture, in the Extraction of Cataract in Its Capsule.

V. H. Heulen, Houston, Texas, describes his method of extraction of cataract in its capsule, recently described by him in the *OPHTHALMIC RECORD* December, 1910. He believes it includes the necessary ease of performance and gives good results. The steps are given by him as follows: 1. The usual preparation and dilatation of the pupil. 2. Cocain and epinephrin for local anesthesia and blanching. 3. Introduction of the speculum and section in the limbus, including one half its circumference, raising the conjunctiva without severing the flap; then introduction of fine silk suture, followed by cutting the bridge. 4. Iridectomy, if it has not already been performed, is desirable. 5. Remove the speculum and wash away any blood in the anterior pupil, obscuring the pupil, with a gentle stream of warm saline solution. 6. The lids are held apart by the assistant, the upper with the lid hook, the patient looking straight ahead. 7. The cup of the vacuum extractor is introduced from the side through the section and gently placed on the anterior capsule over the center of the lens. If the pupillary margin is everywhere free the nurse is told to turn the cock of the gauge and the vacuum cup then rigidly grasps the capsule; the capsule then should be slightly lifted and rotated on its anteroposterior axis to sever the suspensory ligament; then, with the upper edge slightly advanced, the cataract in its capsule is slowly and gently lifted out through the pupil and section. 8. The suture is immediately tied and safe from the loss or vitreous, the edges of the coloboma may be replaced with the iris reposer and the usual toilet of the eye completed. Hulen calls particular attention to the advantage of the flap suture, tied on delivery of the lens, in all cases of capsule extraction. These advantages are realized through the whole healing process. The advantages of vacuum fixation are the firmer pressure and control and the dispensing with manipulation. The delivery may be hastened or retarded, as desired. The exact amount of vacuum for fixation of cataracts of differing consistencies will have to be determined by ex-

perience. Too little may allow the lens to slip and too much might embarrass the operation by disintegrating a soft lens. He usually exhausts the bottle until his gauge registers from twenty to twenty-five, and he has found this safe and sufficient for the usual senile cataract.

DISCUSSION. Dr. G. C. Savage, Nashville.—Dr. Hulen's operation, I believe, will be the last to be devised for cataract extraction. All we have got to do is to let Dr. Hulen and others so perfect the instrument that he has devised and the exhaust tube that he has also brought into use that none of us will be afraid to undertake it. Let us be a little careful while Dr. Hulen and others are making the perfected apparatus. I believe that Dr. Hulen is wrong in one step of his operation. I do not believe the eye ought to be turned loose while that instrument is inside of it. I believe that the left hand—if the right eye is being operated on—and vice versa—should be set to the task of fixing that eyeball so that it shall not move while the operation is being done, and that the very best method of fixing it is the grasp of the tendon of the internal rectus. Then with his instrument, made lighter than it is now, and with that little cut-off entirely eliminated and some other means substituted, introduce the instrument whether an iridectomy has been done or not, and let the exhaust be turned on and I know that by shifting the instrument to the right and to the left it will tear the ligamentous attachments loose. Then when this is done, that same suction being kept up, the lens can be lifted out. I congratulate Dr. Hulen on his operation.

Dr. D. W. Green, Dayton, O.—Dr. de Schweinitz said at the meeting of the Ohio State Medical Society, that he did not believe that America would be behind the rest of the world in devising ways and means for the removal of cataract. He thought the Smith operation was in the right direction. The Smith operation is not a perfect surgical procedure. It is not as well suited to Americans as it is to the natives of India. I congratulate Dr. Hulen on what he has done. I want to congratulate Dr. Peter A. Callan of New York also. He showed me the same principle in 1889. He had the rubber tube, but he had only a little syringe. It was a very imperfect apparatus. I do not

think he ever used it. I do not say this to detract from the value of Dr. Hulen's method.

Dr. Hulen has the idea that Dr. Callan's instrument was for the purpose of sucking out the soft lens substance. I do not understand that that was all he claimed for it. I shall be glad, as I have said, if the operation proves successful but I shall be afraid of the instrument on account of the size of it. I cannot believe all that Dr. Hulen says of the operation. Seven hundred operations have taught me to respect the lens. You cannot touch it with the strabismus hook without rupturing the capsule and Smith's instruction was to always use the flat side of it and to keep the cornea between it and the capsule of the lens. Granting that it comes through a very small hole, yet with a pressure of 25 pounds, it seems to me it will rupture.

Dr. George E. Bellows, Kansas City, Mo.—Do you ever in dividing the cornea entirely divide the conjunctival flap? Does that add to the difficulty in placing the suture? Would it be possible to place the suture as the first step, and then divide the cornea and the conjunctiva in one incision?

Dr. John E. Weeks, New York.—I wish to testify against the statement of Dr. Green. I have used the strabismus hook on the capsule in the operation known as "immediate manipulation" for the ripening of the cataract, an operation first described by Cooley of New York, and also described by a Chicago oculist, Dr. Boetman. If we open the anterior chamber we may rub the lens through the anterior capsule without rupturing it, as I have done a number of times, and the lens becomes opaque in a very short time—in from one to three weeks after such manipulation. Dr. Callan's cup has much the appearance of Dr. Hulen's. I have seen him use it only in cases in which the capsule had been ruptured; that is, for the removal of the lens substance. I do not know, however, whether he has advocated its use in cases in which the capsule has not been ruptured.

Dr. Mark D. Stevenson, Akron, O.—The particular thing for which I think we are indebted to Dr. Hulen is his courage. I did not know of Dr. Callan's instrument, but in the very early days of the Smith operation I devised a practically similar instrument. I did not know of Dr. Hulen's instrument. I tried to control the pressure right at the instrument with a plunger

for the index finger above. The other idea that I had not determined, (as I did not have the instrument made,) was whether the cap should be of metal or soft rubber, so that it would adjust itself better to the lens. If the vacuum cap did not immediately seize the lens it would withdraw all of the aqueous, or even vitreous. Hemorrhages are more likely to result from lowered intraocular pressure than from increased pressure, which expels blood from the eye. Great safety lies in extraction during the outflow of the aqueous. The conjunctival sac nearly always contains dangerous bacteria, and there would be danger of sucking liquids into the interior of the eyeball if one did not get contact immediately. I was also afraid of catching the iris. In removing the lens you have not only the thickness of the lens in the section, but you have this instrument added to it, which necessitates a larger section. The conjunctival flap adheres without suturing. A suture is unnecessary, is slightly irritating and heightens the risks unavoidably, with tying knots on the open eyeball. It strikes me that he pulls on every part of the lens at once and gets the greatest resistance possible; a little rotating and tipping of the lens, bringing tension on one edge, would be better.

Dr. Melville Black, Denver.—It occurs to me that a hole might be run from the center of the instrument to the periphery and by simply putting your finger over that hole or taking it off it would immediately control the pressure on the capsule. I feel with Dr. Savage that it is quite important that the operator should personally have that air under his own control, and it should not be entirely under the control of the nurse. Dr. Hulen does not feel that fixation is absolutely essential. Those of us who have been in the habit of fixing the eyeball in many of our cataract operations feel the necessity of continuing it with any operation of this kind until we are thoroughly familiar with it. The instrument maker should submit to Dr. Hulen all these cups so that he can see that every one is correct. This is important; otherwise the operation will come into dispute. As we know, the instrument makers turn out instruments which we devise in such a way that in a few years they are scarcely recognizable.

Dr. James W. May, Kansas City, Kan.—I should like to ask

Dr. Hulen if he has had experience in removing the dislocated lens, a condition which has given me a great many worries?

Dr. Edward Jackson, Denver.—I have had the same experience that Dr. Weeks alludes to as to the tolerance of the lens capsule to manipulation in doing ripening operations. I do not think I have ever ruptured a capsule. In doing it I have worked the spatula over the capsule in direct contact with it for a considerable time. It occurs to me that the difference is in the tension of the capsule. Dr. Green has touched the capsule when it was tense in the expression of the lens. Until the ligaments had been ruptured there would not be much danger from escape of aqueous into the instrument. A certain amount of aqueous, I suppose, would enter the instrument in picking up the lens in any case. If one failed, however, to get the instrument properly applied to the front of the lens very soon after opening the vacuum it might possibly give trouble. It occurred to me that the conjunctival suture was not a necessary part of this form of extraction.

Dr. Frederick Stauffer, Salt Lake City.—The suture has been used for a great many years by Kalt of Paris, but he takes it before the operation. He dips it into the margin of the cornea, passes it over, makes another dip into the episcleral tissue, pulls the suture aside and makes the incision. It seems to me it would be better to make it before making the corneal incision. We know it is difficult to manipulate the eye after the incision in the cornea is made.

Dr. William F. Mittendorf, New York.—I only want to point out the difference between the ripening of a cataract by means of the blunt part of the hook and the method of Smith, who, as I understand it, ruptures it with the point of the hook.

Dr. Vard H. Hulen, Houston, Tex.—The operation is not presented as one that is perfect and complete, with nothing further to be determined about it. I have done this operation only eight times and have only learned what one can learn in doing it a few times. A great deal must be learned by experience. I took into consideration every suggestion that has been made here this morning, and for good reasons, from experience, have turned them down. For instance, Dr. Black says he would control the vacuum by making a hole and putting his finger over it,

and when he didn't want the vacuum he would remove his finger. He didn't think that in doing that the vacuum in the bottle would be exhausted and he would have to get another vacuum. So that is impracticable, as are many of the other suggestions. Dr. Savage objects to the heaviness of the instrument. That is not an objection for the reason that you have got this tube to handle, which is an objection. I first tried to get the instrument with the vacuum in the handle, but found that to be impracticable; therefore it is necessary to have the tube, and that is an embarrassment to one who is accustomed to the ordinary operations, but the heaviness of the instrument helps the governableness of this tube, and is therefore not an objection. The little valve is an advantage to help control the instrument. You must have a firm grip on it. I think Dr. Savage deserves a great deal of credit for his generosity in the way in which he has received this suggestion of mine. His operation is much easier to do than the Smith, but not so easy as mine, though mine has its objections. It is not as easy as it looks. I don't think any cataract operation on earth ever can be simple. I divided the conjunctival flap accidentally in my last operation. My control was not sufficient, so that in place of stopping just short of severing this flap, I cut all the way through. I put in the suture anyway, and it did not seem to complicate the matter at all. There is no difficulty in putting in this suture in the way in which I have described it. There is an objection to putting it in first. The section in any operation, I believe, is extremely important and must be as perfectly made and as perfectly manipulated as possible; therefore you do not want anything in the way of making the section. The sutures are not of great consequence. The important things are the section and the extraction, and it is here that we should give our entire attention. There is no connection between the suture and the vacuum method of extraction, as Dr. Jackson says, the only thing is that it is practicable to use the suture with this vacuum method and not so much so with the other methods. As to breaking the capsule, Dr. Green thinks, evidently, that there is 25 pounds pressure on the lens; but there is not, for the reason that as soon as the vacuum is turned on you have the entire surface of the capsule sucked up in the cup, and you have a large surface that this cup is adher-

ing to. The edge of this cup must be smooth and not sharp or angular. The instrument exhibited here by Hardy, which you may have seen, has a sharp edge and you could not possibly use that. I knew nothing whatever about Dr. Callan or Dr. Stevenson having devised any cup or any other method of extracting these cataracts. There may be a hundred more, but no one has yet put it on record, and I believe that no one else has found it successful. I have used it successfully in the past eight times, and I feel that the method which I have devised and put on record is entitled to consideration, and not those who have only thought of it. I do not know how long ago I thought of it. It would be difficult to go back and get the record straight. I wrote to Dr. Callan and in his reply he said nothing whatever to lead me to believe that he used his cup in extracting cataract in capsule. He did not say definitely one way or the other, but he had used it, as he called it, for suction. Now suction and vacuum are different. We get no suction in this vacuum method, but when you are taking out soft lens matter you are doing it by suction. This is extraction pure and simple. I have not had the courage to try it on the dislocated lens or anything that is at all complicated. Subsequent features must be worked out by experience. I wish that I might have the experience myself. I should like to go to India and do about ten thousand of these operations. I believe I could come back and tell you something worth while.

The Immediate Removal of Traumatic Cataracts.

J. A. Donovan, Butte, Mont., advises in case of a traumatic cataract, if the patient is seen immediately or soon after the injury, after recovery from the shock and before the local reaction has made careful work almost impossible, that the lens should be extracted. This can be done under local anesthesia, though a general anesthetic is preferable in many cases. If local reaction is already marked one should wait from four to six days when it subsides, and then remove the lens before the secondary inflammatory symptoms have become severe. A general anesthetic is then necessary. Breaking up the lens and washing it out may succeed but extraction, he thinks, is in many cases better. If there is a large central corneal wound or if the lens

has been badly mutilated, cutting it up with the cystotome and washing it out is the operation of choice. Great care should be used in this to avoid injuring the zonula or the vitreous with which the lens may be mixed up. In children or young people, if there are no positive indications of a foreign body in the lens, a safer and more simple procedure is to extract by suction with a needle, and an ordinary hypodermic will do with children, care being taken not to enter the vitreous. Turning the needle so as to watch its opening is advisable. In older patients or when there are particles in the lens, the regular combined or simple extraction is preferable and he prefers to perform iridectomy, especially in severe lacerated cases. With a foreign body imbedded in the iris it is necessary, making the incision as near as possible to the imbedded body. After the extraction he fills in between the lids with a 1 to 5,000 mercuric iodid germicidal ointment, using the standard strength if the eye is clean and double that if infection is probable. Though in a normal eye this ointment might be irritating, in an injured eye it acts otherwise and, besides being a germicide, it prevents adhesions of the lids and dressings. The pupil must be kept dilated and the ointment used once, twice or oftener if needed, each day, and other treatment as indicated. He believes that for the first three or four days salicylates are of advantage. In spite of the extra traumatism and apparent increased risk of infection this early removal of the injured lens is followed by less reaction, less pain, less difficulty in maintaining dilatation of pupil, and very much more rapid recovery than if the case is left to Nature or operation is delayed.

DISCUSSION. Dr. Edward Jackson, Denver.—From my experience I would be inclined not to make the exception of waiting for an inflamed eye, or not make that a very general exception. I think I was induced to try it first by a patient living at a distance and who felt under the necessity of going home. But since that I have done it several times intentionally where there was not any such reason, simply because of the good result in the first case, and that is in an eye that shows a good deal of general reaction and is pretty severely inflamed a few days after such injury, entirely apart from any foreign bodies, when it is simply a perforating injury with disturbance of the lens. In such an

instance I think it is better to go in and extract the lens. The eye is quieted down immediately after the operation to such a striking degree that it shows that the presence of the lens was complicating the healing very seriously. I have seen them clear up within two or three days after the additional traumatism of making the new incision and taking out the lens.

Dr. Oscar Dodd, Chicago.—A short time ago I had occasion to take charge of a patient who had been treated for several weeks, and in whose case the removal of the eye had been advised, the eye being severely inflamed and there being some irritation in the other eye. As I took it, the swelling of the lens was the cause of the trouble. I treated him for a time trying to relieve the inflammation, but could not, and finally extracted the lens and washed it out, and within three days the eye quieted down and he has had no symptoms of irritation since. I think we are all prone to wait until the lens swells, but I believe, as Dr. Donovan has said, it is the proper time to remove them as soon as we can see them and get the lens out, because the subsequent inflammation and danger comes from the swollen lens to a greater degree than from anything else.

Dr. W. R. Johnson, Spokane.—Dr. Donovan and myself practice nearly enough together to know what these injuries are, and see them under conditions that probably few men do. Some years ago we were led to this early removal of cataract from necessity in cases in which we saw rapid swelling, and on removal we found that the cases did better; but not that alone, for we found that in cases in which the foreign body was in the eye, with traumatic cataract, though the inflammation subsided the eye had to be removed later. The cases were lost from secondary glaucoma, and we believe that the swelling of the lens with the great amount of traumatism and the blood were responsible for it, and the increased tension was the cause of the loss of the eyes. It is my practice now to do that. We find that the majority of our cases from blasts occur among the "muckers." A small piece of dynamite that has not exploded remains and the man strikes it with his pick and the blast flies up in his face. Both eyes are probably injured, and one eye is probably destroyed so that enucleation is necessary, and he has a traumatic cataract in the other eye, and you are up against the proposi-

tion of giving that man sufficient vision to enable him to earn a livelihood. It will be seen from the sections shown that these eyes are in the majority of instances glaucomatous, and it is the early stage, the time of tension, that brings the destruction of vision.

Dr. John E. Weeks, New York.—The expression of Bowman, as quoted by Dr. Donovan, sums up the question very clearly, that every case must be judged on its own merits. When we produce a traumatic cataract as we do in needling for high myopia, or in needling for congenital cataract, we have a condition which resembles to some extent the traumatic cataract produced by injury from other causes. It is not a fact that vision will be lost quickly by an increase in tension and secondary glaucoma; that is, there is ample time for the surgeon to observe the condition and to perform his operation before damage of any consequence is done to the eye. I have found in my practice that if an increase in tension exists for from twenty-four to seventy-two hours, the vision is not impaired, in the majority of cases, at least. It is my practice after I have produced traumatic cataract to remove the lens in twenty-four or forty-eight hours after increase in tension occurs. Now it is also found that if we permit the lens substance to swell and become opaque its removal is more easily accomplished than if we attempt to remove the clear lens substance. The adhesion to the capsule is not so great and we can wash it out more easily. It would seem to me the principle of removing the lens as soon after it has become injured as possible is rather a wrong principle to act on, but each case, as I said before, should be treated on its own merits. Increased tension that has existed for any length of time is of course dangerous to the eye.

Dr. W. E. Lambert, New York.—My experience is much the same as that of Dr. Weeks. I have done quite a number of cataracts with high myopia. The indication for the removal of the lens in these cases has been dependent upon the effect of the needling and the time after the traumatism has varied very much; but I think, we cannot advise the immediate removal of traumatic cataract, but it must be removed when the condition of the lens makes it most favorable for extraction. I remember a case of injury in which a gentleman was playing racquets. His

glasses were broken and a large piece of glass had penetrated the eye. The next day the lens began to be opaque, but the formation of the cataract was slow. The eye remained pretty quiet and by the advice of Dr. Bull we decided to wait a few days. Within two days, I think, after the accident, the lens had swollen sufficiently to justify an attempt to extract the foreign body and wash out the lens. He advised very strongly against it and we waited. Six days after this symptoms of glaucoma set in rather severely, and I insisted that something be done or that somebody else take charge of the case. Quite an acute attack of glaucoma supervened. The extraction was done, the lens washed out and the man made an uninterrupted recovery and has today 20/15 vision in that eye. So that it is not always necessary to operate at once.

Dr. Edgar S. Thompson, New York.—It seems to me there are two very distinct points to be made in connection with Dr. Donovan's paper. The first is whether we get the case before the wound has healed up. If the inflammatory reaction has set in and the wound has healed, the question is a different one. Any operation then will give a greater reaction than in the pre-inflammatory period. If swelling has not occurred I think it is better policy to wait. I agree with Dr. Weeks that increased tension is very different in traumas from the increased tension in the glaucomatous eye and is not so serious, and the tonometer will not show the same reduction of sight in traumatic cases. I take it that Dr. Donovan sees them early and the lens is hashed up and in such conditions I would agree to immediate removal.

Dr. J. A. Donovan, Butte, Mont.—In a general way I agree with all of the gentlemen. The danger in any change from a well-established method of treatment is of course that we become too radical on the other side. Personally I favor getting most of these lenses out as soon as we can do so, but there are a great many of them that it is not good policy to treat in this way at once. In some of these injuries one feels certain that there is going to be cataract, and it may not develop. One reason I give is that after the second day the swelling is so intense that nothing can be done. On the other hand, if there is any strong probability that the lens will not have to be removed I consider it best to wait. The general principle is that as soon as I am

convinced that the lens should be removed, then remove it at the earliest possible moment, if you feel it can be done with the greatest safety to the patient.

The Medical Treatment of the Patient Before and After Cataract Extraction.

D. W. Greene, Dayton, Ohio., emphasizes the importance of medical treatment for certain cases of cataract, both before and after operation. A senile cataract patient is not likely to be in good general condition; while age alone cannot be regarded as a cause, certain nutritive changes to which we can attribute the oncoming of senility predisposes to cataract. Greene would have a patient in the hospital from twenty-four to forty-eight hours before operation, or long enough to estimate the physical condition, unload the bowels thoroughly and reduce blood-pressure if possible. The individual should be on light diet for several days before and should have a good night's rest before the operation. He should be free from other eye troubles. Rheumatism and gout, while important before operation, are most important afterward as an indication of metabolic disorders of auto-intoxication which form the principal subject of the paper. Greene quotes various authorities in regard to this point and applies their opinion, especially to the conditions of the eye. He thinks that the infrequency of postoperative complications in Smith's clinic in India, while due first to the thoroughness of the operation of intracapsular extraction which avoids the leaving of capsular remains and cortical debris, is perhaps still more due to the diet, age and physical condition of the patients. As a rule they are younger and the limited diet and active elimination by the skin in that climate do not predispose to faulty metabolism and acid intoxication. He does not mean to intimate that a large percentage of our cataract patients are liable to suffer from the results of auto-intoxication but aims to call attention to the small percentage that are. If after the operation there is photophobia, chemosis, excessive redness and discharge, a cloudy cornea, cortical debris, muddy aqueous and discoloration of the iris, etc. We know things are not going well, though we may not be able to recognize any obvious cause, but by exclusion may believe it is due to faulty metabolism and auto-intoxication which call

for active eliminative treatment. He speaks here incidentally of the use of hexamethylenamin. Its utility in these eye conditions is deduced from its known antiseptic action in the urine and it is also known to be eliminated through the aqueous humor. He has used it in over a hundred cases, but has not got a definite conclusion yet as to its real value. The value of mercurial saturation of the patient by the mouth, subconjunctivally, hyperdermically, intravenously, or by inunction is as well established as any empirically established fact we have in medicine. It is the chief reliance of British ophthalmologists in deep-seated intra-ocular inflammations.

DISCUSSION. Dr. F. T. Rogers, Providence.—My experience with dionin has been that there is frequently an unpleasant reaction. It seems to me if 30 minims of dionin is injected subconjunctivally the reaction must have been unpleasant. I should like to ask if such is not the case.

Dr. G. S. Savage, Nashville.—Dr. Greene says he uses a 4 per cent solution of atropin. If he had seen people get as crazy as I have seen them on a much weaker solution, and had sat up all night with them and held them in bed, I do not think he would use it in that strength. Two drops of a 1 per cent solution has made several of my patients entirely crazy for a considerable length of time. I want to endorse the use of dionin when the eye is inflamed after cataract. I have never given it subconjunctivally. I would not hesitate to give it, statistics or no statistics. I do not believe that the reaction means other than good to the inside structures of the eye. Whenever there is a suspicion of infection of the corneal incision I use 1 drop of acetic acid No. 8 in 5 drops of water; apply a weak solution of cocain and in two minutes take a pledget of cotton on a toothpick and dip it in the solution and carry it along the incision. Acetic acid is undoubtedly germicidal. In its after effects it is soothing, and it is promotive of epithelial growth.

Dr. H. W. Woodruff, Joliet, Ill.—I have used 5 per cent citrate of soda injections in a case of rise in tension following iridocyclitis with very happy results. The tension was lowered in five minutes and did not become elevated again for two days, after a second injection the tension remained down. I have felt

that it could not be of any service in the chronic forms of glaucoma, except perhaps temporarily. I always want to look at my extractions at least the day afterward, because I am absolutely certain that I have saved eyes which would certainly have been lost otherwise. Very often infection does not cause pain; but you find the cornea has sloughed. I performed a cataract operation on a patient who had had a dacryocystitis. I had not removed the sac, but there appeared to be no sign of pus and no organisms in the conjunctival sac. The next morning when I removed the bandage there was a hypopion, a cloudy pupilar area; an infected eye. I immediately made an injection of mercuric cyanid solution in the strength of 1 to 1,000, injecting 8 minims with 4 minims of a 4 per cent solution of cocain. I examined the eye again in the afternoon, perhaps about four or six hours later, and there was no increase in the hypopion and apparently some clearing of the anterior chamber. I made a second injection of the same strength and the next morning there was no pus in the anterior chamber; the media were clear. No further injections were necessary and the patient made a recovery with an average degree of vision.

Dr. F. P. Calhoun, Atlanta, Ga.—The case I wish to report is apro-pos the medicinal treatment before cataract operation. It was a case of cataract in which there was hookworm disease. This case and three others were reported at the recent meeting of the Georgia State Medical Society. This case was in every way typical of this disease. The patient was anemic, with bloated face and dropsical extremities, offensive breath and a history of ground-itch several years before. The hemoglobin was 20 per cent. The boy was 20 years old, but in intellect was a mere child. He had been blind about a year. The eyes showed typical soft cataract. Three discissions with one week intervals were made with no ripening at all of the lens. He had hyperemia of the conjunctivae. At that time it was decided to give the patient the usual treatment for hookworm, namely, restricted diet, then calomel, salts and thymol. A collection of the stools was made after this treatment and there were 850 parasites found. Under Bland's pills and a nutritious diet the patient rapidly improved in his general condition and two weeks after this treatment there commenced to be a marked reaction in the lens and great injec-

tion of the conjunctiva. The ultimate results were most satisfactory. The point I wished to make was the mistake in not giving this treatment before the discussions were made. I believe the reaction would have been more marked.

Dr. A. E. Bulson, Jr., Ft. Wayne.—I should like to ask about the reasons for using dionin subconjunctivally. I have used it in that manner and have seen no advantages over its application to the conjunctival sac. The effect seems to be the same, while subconjunctivally it is painful.

Dr. D. W. Greene, Dayton, O.—I can answer Dr. Bulson's question briefly—because it is much more effective. I never give these injections without previous injection of weak cocaine or eucaine. Usually there is little pain. I deal largely with old soldiers and they stand pain well. In private practice I have had complaint. I had a man at the Soldier's Home whom we gave no anesthetic whatever and he did not complain. Another man complained bitterly who did not have an anesthetic beforehand. The excessive reaction is what does the good. You do not get the reaction from applications outside. The same with the citrate of soda. You can drop it into the sac and let it remain fifteen minutes but you get no effect. You must get it deep in behind the eye or along the course of the muscle. You do not want to get the dionin into the capsule of Tenon, but in the course of the muscles.

I have not been able to get the reaction I wanted from 1 per cent solution of atropin. I have never seen untoward results from this. I do not think Dr. Savage will if he will use it as described in the paper.

I had a case of delayed healing in a private patient in which I attempted to use nitrate of silver in an open wound. I did not wipe my applicator, and that nitrate of silver in 10 per cent solution left a white line on Descemet's membrane, and that has made me fearful of applications of any strength. Dr. Woodruff's experience with the citrate of soda has been like mine.

In regard to examination the second day, certainly no other wounds are opened and meddled with and handled the second day; they are given time to heal. Injections of mercuric cyanid I have used in only a few cases. They are painful and I have avoided them. I once saw Major Smith flush the conjunctival

sac to remove blood, and a bichlorid solution went into the anterior chamber and Descemet's membrane became white and remained so for four weeks while the patient was in the hospital, and I suppose it is white yet.

Intraocular Neoplasms with Report of Five Cases.

Dr. F. Park Lewis, Buffalo, N. Y.—He says that malignant intraocular growths in children are, as is not the case elsewhere, in their beginnings encapsulated. If they are discovered early enough, therefore, life may be saved by enucleation, but if not discovered until the orbital or extraorbital tissues have become involved a horrible death may be expected. While rare it is probable that if all cases were reported the aggregate would not be so small. The etiology is still uncertain. Some facts suggesting heredity have been reported but Lewis thinks it more probable that a congenital fetal defect may predispose to their development from "rests" as suggested by Connheim. While much has been written concerning retinal glioma, no specially new facts have been developed that change existing views in regard to its nature. He publishes his four cases of this disorder, not to add to pathologic knowledge, but to call attention to the condition and urge the more general reporting of such when they occur. Every case should be reported and, if possible, a section of the tumor be made and its character determined. By calling attention to its manifest characteristics it may be possible for others to make the diagnosis before the growth passes outside the eyeball and the patient's life be saved. The yellowish reflex from the depths of the vitreous originated the name given it by the earlier writers of "amaurotic cat's eye," and if a light is allowed to shine into the large pupil the whitish reflex coming from behind the lens is almost absolutely characteristic. When seen, skilled advice, if possible, should be obtained at once. It is quite different from the whitish color of a cataract or the surface opacity of a leukoma. It may indeed be confounded with plastic deposits in the vitreous from the uveal tract, but these are rare in young children and, when occurring, the usefulness of the eye is probably already lost. The first three cases reported are of interest as being typical of this form of neoplasm. The fourth, having its origin in the optic nerve, is very rare. All

these cases occurred, as glioma almost invariably does, in children under four years of age. The fifth case was one of melanoma in a boy 13 years of age. There is no evidence as yet of a recurrence. The sixth is of interest as being the result of uveitis, possibly prenatal developing a glaucomatous condition of the eye and simulating an intraocular tumor. The diagnosis was only possible after operation and examination.

DISCUSSION.—Dr. G. C. Savage, Nashville. — Two of the most interesting cases I have seen were in children in whom the glioma appeared in both eyes. Ten years ago, a condition developed in one patient which was unmistakable in the first eye and the parents of the patient submitted to the enucleation of the eye, and in a few months it developed in the other eye. They rebelled for a few days to the removal of the other eye; but it was removed and the child is well. In the other case the patient died two weeks prior to this meeting. The condition developed in one eye and very properly the parents allowed enucleation to be done. That eye got perfectly well and there was no return on that side up to the death of the child. The trouble developed in the other eye and they would not consent to an operation until the eyeball had probably undergone degeneration posteriorly and the eye trouble began to show itself behind the ball in the tissues and the eye was projected. Operation was then done but it returned in a short time and then the orbit was eviscerated thoroughly. It returned again. I have had quite a number in a single eye, some of them not operated on at all, some operated upon too late, the trouble returning and the child dying, and only a very few were operated on sufficiently early to prevent a return in the side from which the eye had been removed.

Dr. William F. Mittendorf, New York.—I have always been interested in the etiology of these growths. I have observed a number of these cases, and yet in not a single instance was I able to trace a seeming history among the relatives. But I remember years ago the late Dr. Miller, of Providence, Rhode Island, reported a number of cases which occurred in his locality, and he expressed the opinion that in certain localities, especially in his neighborhood, these growths appeared to be more frequent than in others.

Dr. Edward Jackson, Denver.—I can recall four cases. I may have seen one or two others. I think that perhaps men who are in the same position in practice as Dr. J. L. Thompson of Indianapolis or Dr. Savage of Nashville are liable to see a misleadingly large number of cases. These patients are likely to be taken from one doctor to another before the parents will consent to have the eye enucleated, and for that reason the statistics may be misleading. I have never seen a double case, but I think I have seen four or five single ones. The last case I saw had been seen by some one before coming to me. The parents lived in Texas and were referred by the physician there to Dr. McDonalds to have the eye enucleated.

Dr. Adolf Alt, St. Louis.—I have seen about eight cases in my practice regularly, but these cases came in the very early stage, so that I do not know of a single case in those I have operated on in which a relapse occurred. I have seen others in consultation such as Dr. Savage related. I had one case in which both eyes were affected. It was the second in the same family. The first was brought to me when it was so small I hesitated to make the diagnosis that it was a glioma. They consented at once to the enucleation of that eye, and the child, which was about a year and a half old, is now a buxom young lady. Eight or nine months after the first child was operated on they brought the second child, a younger sister, and I found the same condition in both eyes in that child. I proposed to the parents, of course, that to save the life of the child both eyes should be removed at once; but they decided that that was rather jumping in the face of Providence and they preferred to see the child die, which it did.

Dr. Hiram Woods, Baltimore.—I do not believe these cases, as Dr. Jackson says, are quite so frequent as the text-books would make us believe. I personally have had one double case, the child of a physician living in Maryland. Both eyes were enucleated and the diagnosis of glioma confirmed by Dr. Flexner, who was then living in Baltimore. The operations were done in 1898, thirteen years ago, and there has been no sign of a return. I have seen three or four others that I can recall. One or two points about the diagnosis. There is, as we all know, an inflammatory mass that presents itself in the vitreous at times, which is

sometimes a sequel of a meningitis or other inflammatory or infective condition, and it gives rise to characteristic appearances, the exclusion of the pupil, the retraction of the edge of the iris; that is, the typical signs of chronic uveitis, which would serve us in the diagnosis. I saw one case last winter in which there was nothing of that kind at all. It was a child $4\frac{1}{2}$ years old, who had the typical whitish reflex, the pupil widely dilated, no history of inflammation of any kind, and the white globular mass was absolutely characteristic of glioma. Enucleation was advised by three oculists. I was the fourth man consulted. I removed the eye, but examination by a competent pathologist was to the effect that there was no malignancy at all, and that it was a large, vitreous inflammatory mass.

Dr. J. A. Donovan, Butte.—I was a little surprised when I read the introductory line of Dr. Lewis's paper that these neoplasms are rare. I thought they were rather frequent. Four I can recall. One I know went east and I lost track of it after I had advised enucleation. One was a child about 3 years old, in which I removed the eyeball. The child a few years later died of secondary complications. Another was in the neighborhood of 3 or 4 and the child got well. I lost track of it for a time, but learned afterward that it was well. Another was a girl of 15 when I operated three years ago. I saw her a couple of months ago and left her a half a grain of morphin for secondary conditions.

Dr. W. H. Roberts, Pasadena.—Last fall in Moorfields I saw a child which had one eye enucleated for glioma and was then brought back for the enucleation of the other eye.

Dr. William Zentmayer, Philadelphia.—In regard to the differential diagnosis, I saw a patient at Wills Hospital six years of age. The only illness the child had had was measles some months before. The parents were unaware of the loss of sight, which was discovered in school. The child was brought to the hospital. He had a forward displacement of the lens. Behind it there was a mottled gray mass, lobulated—three lobules—with deep crevices, with several blood-vessels over it. The blood-pressure was slightly increased. There were no inflammatory symptoms. Transillumination was not entirely satisfactory. I took it to be one of the cases which Nettleship has put on record of

detached retina following measles, following a subretinal hemorrhage. The eye would have been left if I had it to do again, but for my colleagues whose sentiment was against me. I did not then immediately remove it, but three or four months later the child had some little pain in the eye and I enucleated it. There was nothing but detached retina—no evidence of malignant growth whatever.

Dr. Thomas J. McCoy, Los Angeles.—For statistical purposes I wish to report that I have only had three cases of glioma. I especially wish to report one case referred from Mississippi ten years ago. There was a growth in the right eye of this child a year old. The child was blind and the diagnosis of glioma was made and the eye enucleated. There was a slight evidence in the other eye at that time of a growth in the fundus, but it was thought better to watch the case. One year after that the growth was found projecting to the edge of the ciliary body. The eyeball was probably twice the usual size, and I enucleated the second eye. No evidence of malignancy was found in either parents and when heard from during the last year the child was well and in good health at 11 years of age.

Dr. Archibald L. Macleish, Los Angeles.—I had the misfortune this past winter of handling a case of double glioma. Previous to the first enucleation a colleague thought he detected an adventitious growth in the other eye. I decided to examine that eye under anesthesia, but I was not able to satisfy myself of the presence of a growth. There was no external evidence of disturbance of the eye. The eye that was first removed was examined by Dr. Stanley Black of Los Angeles who pronounced it to be a typical case of glioma. Within six weeks after the operation when the healing in the first eye was nearly completed, the parents detected a whitish reflex in the other eye. I put the child under an anesthetic and satisfied myself that there was undoubtedly gliomatous tissue present though farther forward in the lower segment of the globe. I had to tell them what was the matter, and they asked me of course whether there was anything that might be done other than enucleation. I had to say no. A few days later they told me they had decided to take the child to Lourdes, and as the case was so far forward on the globe I temporized with them on condition that in passing through Paris

they should consult Dr. Galiszowsky, which they did. He confirmed the diagnosis and joined his consent to mine that they should try the virtues of Lourdes, and they are still there.

Dr. De Witt C. Bryant, Omaha.—I have taken care of six of these cases. Only one had both eyes affected. Of the six, two are alive that I know of; in one I do not know the result. Three are dead. One of the two I operated on, some twelve years ago, is still alive and perfectly well. The other has been dead some seven years.

Dr. Albert E. Bulson, Jr., Fort Wayne.—I have some hesitancy in saying anything on this subject, as my experience is such that it would lead you to believe that Indiana is a rather fertile field for the development of glioma. Attention has been called to the number of cases reported by Dr. J. L. Thompson, of Indianapolis. I have examined one or two cases seen by Dr. Thompson and perhaps reported by him. I have not had the opportunity of looking over my records, but I am quite positive that I have seen not less than eight cases of glioma in my private practice.

Among the specimens of ocular tumors exhibited at Atlantic City a few years ago were two of mine, one a case of double glioma; the other a case of single glioma. During the past year I have seen one case of double glioma in a child three years of age. The patient was thoroughly examined under a general anesthetic with the electric ophthalmoscope and the condition studied carefully. A diagnosis of glioma in both eyes was made and the recommendation offered that both eyes should be enucleated, but the parents refused to have the operation performed. The child was taken to a confrere who gave the same advice, which was accepted, and he enucleated both eyes, not, however, until after the tumor had extended beyond the eyeball on one side. The child died a few weeks later from extension of the glioma to the meninges.

The discussion of Dr. Macleish brings to my mind some cases bearing on the question of the hereditary tendency of glioma. Sixteen or eighteen years ago I enucleated the gliomatous eye of a child in a family in which I afterward saw a second case of glioma. The first child died from extension of the glioma to the meninges, and 3 or 4 years later the second child,

having a glioma, was brought to me, but my advice to have the eye enucleated was not accepted and the patient drifted into other hands. The reason for refusing the operation was that the parents thought that the operation on the first child had hastened its death. However, the second child lived but a few months after I examined it, and died from extension of the growth to the meninges, without operation in an attempt to stop the progress of the disease.

I wish to emphasize the necessity of examining these cases of fretful crying children under general anesthesia, as I also wish to make a plea for examination with the electric ophthalmoscope, which to my notion is the only way of getting satisfactory intraocular illumination. I also wish to make a plea for early operation after the diagnosis is made. If we are to do anything worth while for these cases, it must be by early enucleation. This was emphasized in the discussion of the same topic at Atlantic City a few years ago when someone, my impression is that it was deSchweinitz, reported several cases in his practice, and in that of some of his confreres in which early enucleation had saved the life of the patient for a number of years. In nearly all of the cases seen by me the tumor has been found occupying not only a part of the vitreous chamber, but to have followed up the optic nerve for some distance beyond the eyeball. In such cases we are bound to lose the patients from extension of the glioma to the meninges. In the reported cases in which the patient has lived, an early operation has been performed, and before the glioma has extended beyond the eyeball.

Dr. Jackson has called attention to the unreliability of statistics concerning these cases. Practically all of these patients will consult two or more ophthalmologists before enucleation is accepted, and when a patient goes from one ophthalmologist to another, and each man adds the same case to his records, it really interferes with the reliability of our statistics as to the frequency with which glioma occurs.

Dr. John E. Weeks, New York.—The diagnosis is not always easy. There is a condition known as pseudoglioma, which may readily confound us. In two cases there were conditions similar to those Dr. Zentmayer has described. The ordinary metastatic choroiditis is sometimes not very easily differentiated. I have

not found heredity. I am very much interested in the statements of others and in the report in the paper. I listened to the Bowman lecture by Nettleship some time ago on heredity, and he made but brief reference to heredity in glioma. I see quite a large number of cases of glioma of the retina, but they come from all parts of the country and the cases that remain under my treatment are relatively few. In the last year I have seen four cases, and in the previous ten years I think they would number two or three a year. The percentage of recurrence is rather high; I have seen two cases in the last three years. In both cases the parents decided that the child should die rather than to grow up sightless, and enucleation was not done in either case. I want to mention a case of melanosarcoma of the choroid which, so far as I know in the cases coming under my observation, is the smallest for which an eye has been removed. The man was 24 years of age and some year and half before had noticed symptoms of a central scotoma. He consulted a local oculist in Syracuse who found a mass in the background of the eye. He decided that it was in all probability a sarcoma, after iodid of potash and mercury to saturation was used by him in order to determine a syphilitic element. A Wassermann was made and tuberculin used by me for differentiation. I had him under observation for three months. I took repeated drawings and found that the growth advanced. When the growth in the horizontal diameter measured 1.5 mm. and in the vertical diameter 2 mm. and the elevation 0.5 mm. I removed the eye. The microscopic examination confirmed the diagnosis.

Dr. Edgar S. Thomson, New York.—I have been working in the Manhattan Eye, Ear and Throat Hospital where we have seventeen thousand cases a year; have seen about six cases of glioma a year, and have had an opportunity of examining at least forty specimens. I have not had opportunity to follow them up. My impressions are from my experience that the most important thing in the prevention of recurrence is far-back section of the optic nerve. Von Graefe advised that years ago. Parsons in his recent work states that the most common extension of glioma is to the choroid, and that would lead one to believe that evisceration is important. In glioma extension to the choroid is rare, whereas extension to the optic nerve is the

most common thing. Cases from which specimens come to the laboratory in which the optic nerve is involved recur in six or seven months, a cerebral hemorrhage or an attack of unconsciousness occurs and the child dies. I have seen but one or two cases of extension into the orbit, and these are cases in which the growth had gone into the choroid. In my own cases in the Manhattan, I think not more than six, I have always drawn the nerve forward as far as possible and then cut the optic nerve at the apex of the orbit. With regard to double gliomas, I have seen only one or two. I think they are apt to go around, because they will not submit to operation. In one case in which operation was done by Dr. Agnew, who died in 1888, the man is still living, with no recurrence.

Dr. F. Park Lewis, Buffalo.—Among the various classical cases reported the first by Dr. Thompson of Indianapolis, is the most remarkable case of heredity I have seen anywhere. A little girl was brought to his office in 1903 with a glioma of the right eye.

The first child affected with cancer was a boy born in 1869; no medical attendant; died in 1871; the second child was born in 1872; the disease was noticed in 1873; the eye was removed in September, 1873; cancer came in the other eye eleven months later and the child died in 1875. The third child died in 1882. The fourth child was born in 1883. The disease was noticed in February, 1885. It died in March, 1887. The fifth child was born in September, 1888. The disease was noticed in 1890. It died July 5, 1891. The mother was then 55 years old, the mother of fourteen children, seven boys and seven girls, and had lost no children but from cancer (glioma). This history was published in Knapp's Archives in 1894.

The discussion has brought out that notwithstanding the number of cases in each individual practice the aggregate number is small. The diagnosis, except in the cases of pseudoglioma, to which reference has been made, in the ordinary case is a very simple matter, and yet in the hands of the general practitioner the rarity of the disease would incline him to make a diagnosis of cataract and wait; therefore the importance of having more generally understood the fact that when recognition is early and enucleation is prompt it will in a considerable proportion of cases save the life of the child.

Distortion of the Visual Fields Observed in a Series of 200 Cases of Brain Tumor.

By Dr. Harvey Cushing and Dr. G. J. Heuer, Baltimore.—

Dyschromatopsia in Brain Tumor.—After referring to a former article (*Johns Hopkins Hospital Bulletin*, June, 1911), in which they had related, that reliable perimetric observations had been made in 123 cases of cerebral tumor and the findings observed, the authors give specific illustrations of the cases showing dyschromatopsia, and correlate them as far as possible with the stages of advancing choked disk, laying special emphasis on the field deviations occurring with or antecedent to the earliest fundal alterations. They divide their cases into three groups: first, those where, with total absence of even beginning choked disk, there was equal bilateral color interlacing; second, those in which there was definite unilateral color interlacing; and, third, those in which the interlacing coincided with a low grade of choked disk but disappeared after decompression, before the subsidence of the edema. Cases illustrative of each of these types are reported in detail. They reproduce Dr. Marcus Gunn's description of the various stages of choked disk and report cases illustrating the stages. They summarize their paper in the following: "Out of the 123 cases in our tumor series, in which perimetric observations could be made, fifty-three showed simple color-interlacing or inversion with more or less constriction of the field boundaries. In ten of these fifty-three cases the dyschromatopsia either actually preceded any recognizable ophthalmoscopic change in the eye-grounds or accompanied the most incipient stages of choked disk. These distortions of the color boundaries, therefore, promise to be of some service in the making of a more precocious diagnosis of an increase of intracranial tension than is commonly ventured on. Thus, in a number of cases of early tumor extirpation, color inversion and interlacing, in addition to attacks of Jacksonian epilepsy, were the only indications of the lesion. The perimetric deviations, observed before and after operation, in the remaining forty-two cases of simple dyschromatopsia we have attempted to correlate with the accompanying grades of choked disk, subdivided into six groups, according to Marcus Gunn's classification. The article is illustrated.

DISCUSSION. Dr. Sherman Voorhees, Elmira.—I had not taken the fields for color prior to the writings of Bordley and Cushing. Since then I have been taking some, although the cases reported in my paper show nothing of them. Two cases recently under my care which had decompression operations show this interlacing and inversion of the color field.

Dr. Hiram Woods, Baltimore.—In reviewing these cases I find that there have been in most of them, in addition to the color interlacing certain symptoms that would at once lead the ophthalmologist to expect something else besides an ocular lesion. For instance, there have been one or two cases of Jacksonian epilepsy in this report, and various functional symptoms in various parts of the body, and these things themselves, in association with any field-abnormality at all will lead the ophthalmologist to consult the neurologist. On the other hand there are cases in which we see color interlacing without optic neuritis, without any other symptoms. Now the orthodox interpretation of that has been hysteria, as we know. In the case of one patient whom I believe Dr. Cushing subsequently operated on, I saw that interlacing of the color-fields without any other symptoms at all, without any optic neuritis, and made the diagnosis of hysteria from the absence of any other nerve symptoms at all. Now a very practical question for us ophthalmologists to know about is this: When we get hold of cases with this interlacing of the color-fields alone, without any other symptoms on the part of the nervous system, how are we to interpret it?

Dr. Walter S. Franklin, San Francisco.—Dr. Cushing said the fields seemed to vary with different observers, and I feel that here we have a chance to make an improvement in our methods. The personal equation enters largely into the taking of the color-field. Different men get a difference of five to ten degrees with the same patient, and each feels that his results are correct. I should like to ask Dr. Cushing whether there are any particular details of taking the color-field, difference in style of perimeter, whether self-recording or not, or are there any details that he can give us so that we can standardize our methods of taking correct perimetric measurements?

Dr. John E. Weeks, New York.—I should like to ask whether this interlacing of the fields has been noticed in conditions other

than tumor, as, for instance, abscess of the brain; is it also characterized by interlacing of the fields? Also, whether any color but blue is affected; whether the red field is found interlacing at all with the green, or whether it affects simply the blue field in relation to the red?

Dr. Arthur C. Thorpe, Los Angeles.—I should like to ask Dr. Cushing how long this interlacing of the fields persists; whether it is constant throughout the course of the development of the tumor, or whether it becomes lost in the later stages? We have had a case of cerebellar tumor here in this city in which I made the diagnosis, but was not satisfied that I had true interlacing of the fields. The color-fields overlapped, I believe, at only two points, but the case was very well developed at the time and has been operated on with very brilliant results. The two symptoms that brought this patient to me were headache and vomiting. The young man had had an appendectomy, and a great many measures had been taken to relieve the headaches. He had been East. At the time he consulted me the papillitis was so very well marked that the diagnosis was easily made.

Dr. Harvey Cushing, Baltimore.—We may, perhaps, have emphasized things a little too much. I doubt not that we would have recorded Dr. Thorpe's case as one of interlacing with one or two points. I would like to know how many points were taken. The showing of some turning in of the blue field at the periphery in a patient with cerebellar tumor will be as much as we can expect. We cannot subject these patients to very long detailed observation. Here the diagnosis is so definite that it is hardly necessary to lay much stress on this condition which we hope may be of some use in the early stages when the papillitis, if we want to call it that, may be present.

Dr. Woods' questions are a little difficult to answer. There are, of course, many functional disturbances with people, possibly sensory disturbances, that we do not recognize as anything else but functional, in people who may possibly have organic lesions. There are sensory disturbances as brought out by the two-point tests which have an organic basis. These people with Jacksonian epilepsy have been patients in whom the lesion has been certified, and in whom one would have expected a sufficiently high grade of tension to have caused an extensive choked

disk. One of these patient had had interlacing, observed over a period of a year, and the neurologists and all who had seen this gentleman, were very much concerned about his condition. We did not believe it was possible that he was harboring a tumor. He had had Jacksonian epilepsy, he never had headache or gastric disturbances of any sort; in fact, no pressure symptoms such as we usually consider, or in the past have considered, essential to a diagnosis of tumor. His local attacks persisted and became so frequent that it seemed best to make an exploratory operation, and this disclosed, as I reported in this series of cases, the largest one of the benign tumors that has occurred in this series of 250 cases (we have only spoken of 200 from the standpoint of the eye-ground). We may perhaps tend to call conditions interlacing of the fields which are not strictly so; possibly, endeavoring to make the matter register, we may have gone a little further than we were justified in doing. I acknowledge this. The condition varies at different times. Fatigue may have something to do with this. The same person taking the field in the same individual perhaps a few hours later or the next day may register a different field. But it shows this tendency, and it shows that one must generalize rather than particularize about these conditions. We are rather inclined to interpret interlacing as a manifestation of pressure. It disappears usually, before the choked disk has disappeared. I presume the persistence of the choked disk means that conditions have arisen secondary to the long-standing tension that have set up a reaction in the nerve, with round-cell infiltration, with new tissue formation, which leads to the persistence of the stasis and prevents the swelling of the nerve-head from subsiding rapidly. But there are people without very much change in the nerve-head in whom the fields widen out and assume normal color relations without any every evident subsidence at all in the choked disk.

In answer to Dr. Franklin's question, I wish too there could be a standardization of these matters. I have, perhaps, in what I have said made some answer to the question. We use almost always a 0.5 disk with pure colors, but some of the fields with low vision must be plotted with 1 cm. or larger disks.

There are other conditions that cause this abscess, serous

meningitis, etc. In not all of these 200 cases has the tumor been certified, many, perhaps, not certifying until six months or a year after decompression, when after a number of months the tumor has given evidence by producing neighborhood symptoms. Blue is the widest field, and possibly for that reason may be the field the restrictions of which are most seen. It does affect the other colors; sometimes the red is within the green, and the blue and red interlacing with the green field, but we have felt that we could get as much out of the blue and red periphery as if we took an extra periphery, and hesitating to give the patient a longer ordeal than necessary we have disregarded the green field.

I do not know how long the interlacing persists. As I have said in the paper, here is one that has persisted for a year, and the interlacing and the epilepsy were the only symptoms that he had, and shortly after the operation they had disappeared.

Report of Nine Cases of Brain Tumor.

By Dr. Sherman Voorhees, Elmira, N. Y.—Special reference being made to the eye findings. He is fully convinced, he says, that some cases of brain tumor are missed in diagnosis because of non-recognition of the early changes in the disc. He thinks also the the symptom of temporary amaurosis is of great value and occurs in the majority of cases. It is his opinion also, that the greatest swelling usually occurs on the side of the lesion, but there are so many exceptions that this is of value only in connection with other symptoms. The same, he thinks, may be said of nystagmus. A symptom which he considers of great value is deafness in one ear, and in the majority of cases of tumor of the cerebellum this is one of the earliest symptoms and useful in diagnosis. In four of his reported cases this occurred. The character of the vomiting is usually expulsive, without previous nausea and is frequently nocturnal. It is interesting to note, also, the loss of vision which occurs in some cases not yet in the choked disc stage and also the amount of swelling which may exist in a nerve head with good central vision. Even if we see a case late in the disease with atrophy begun, he still thinks it is advisable to perform a decompression operation and removal of the tumor if possible. This will help to save what vision remains

and relieve some of the other symptoms such as staggering and vertigo. He has no doubt that the reversal and interlacing of the color lines as described by Cushion and Bordley is of value as an early diagnostic sign. Early operation in case of choked disk is advisable and, if there is a doubt as to its cause, the Wassermann reaction should be tried. If there is a definite history of specific infection, especially if recent, a course of mercury may be tried, but he agrees with Horsley that old cases should be treated as any other surgical cases. A symptom he has noticed in several of his patients and which he has not seen described elsewhere, is a loss of sense of direction. In two of his cases an early sensory symptom noticed was a feeling of numbness about the eyes and about the face. One of his cases illustrated the possible simulation of abscess by tumor, as there was the rapid onset, slow pulse and the subnormal temperature seen in some cases of abscess.

Dr. Archibald L. Macleish, Los Angeles.—I previously attended the patient referred to by Dr. Thorpe in the discussion of Dr. Cushing's paper previous to the cerebellar trouble, in which latter condition I also saw him in consultation. The neurologist suggested a vigorous course of iodine treatment by the injection of iodopin and the cutaneous use of iodine vasogen. The choked disk was distinctly lessened in elevation and the general angry appearance of the nerve-head was materially lessened. When operation was proposed to this patient he went East and was told that he was neurasthenic and that he should try farm life. He came back and the case went from bad to worse, until operation was imperative, with the result that Dr. Thorpe has announced. Not every case of apparent choked disk is really choked disk. I had under observation three years ago a young woman of 19 who presented a typical choked disk on both sides, with a disk elevation of 3 D. She was hypermetropic 2.5 D, but the disk elevation was in addition. I had a little bit of doubt about the true nature of the case, because deeply in the swelling I could detect at one place a certain nodular formation very obscurely. She had paroxysmal occipital headaches, with no vomiting and no symptoms of organic cerebral disease save the choked disk. Six months later there had appeared a more marked nodular condition of the disk substance, and later I

could demonstrate the lesion over the nerve-head and lateral tissues as well. One ought to be careful in diagnosing these cases Dr. Bordley has called attention to this in an article in the *Ophthalmoscope*, and insists on it as a matter of precaution.

Dr. Harvey Cushing, Baltimore.—It is inconceivable that one can make a satisfactory neurologic examination unless the patient is in a hospital under observation for a number of days. Even for a satisfactory examination of the eyes it takes a long time if you are going to include perimetry, for example, with it. And when we consider the fact that we have got to examine not only the other special senses, but the cerebrum and all the cerebral nerves, and the patient's general condition in addition to that, it becomes a very arduous matter. We have a schedule of things that are observed in every case under a definite rule of procedure, so that no individual symptom may be overlooked, and no individual point forgotten, so that in the subsequent analysis of his case one need not say that he failed to examine the patient's condition in some respect. Dr. Voorhees did not attempt to do anything but point out the interesting things in regard to these nine cases.

We have seen a great many cases with apparent so-called albuminuric retinitis in individuals who were subsequently proven to be carrying tumors. We have seen people who to all intents and purposes have brain tumor and are subsequently shown to have nephritis. It is often exceedingly difficult to picture the change in the eye-ground in the two conditions. Temporary amaurosis I had always supposed to be a late manifestation of the change in the eye-grounds. I did not suppose that early in brain tumor people would have these periods of passing blindness, which are so apt to occur with headache or accompany projectile vomiting, etc. But I am interested that here in one of these cases the patient appeared to have these periods of blindness early in the disease. We, too, rather feel with Sir Victor Horsley that in supratentorial lesions not the degree of swelling but the age of the process is apt to be greater on the side of the lesion. You may have choked disk which has gone to the contraction stage and subsequent swelling. If you are going to measure the nerve-head you would not consider it the more advanced process so far as the measurement goes. A cerebellar

lesion may exist for a long time without any change in the eye-ground, just as you may have a pituitary body tumor never giving any neighborhood symptoms or other change, though I should have said when discussing my own paper that a bitemporal change does not occur in pituitary tumors any more than homonymous hemianopsia.

Now the results of operation in the late stages I think are not very brilliant. It is heartrending in a patient who still has some vision before operation to see it subside after decompression when all the other symptoms have disappeared and fade into a condition of blindness because the chronic changes and new tissue formation gradually close down and shut off the possibility of the transmission of light. The fact of the blindness coming on before careful neurologic examination is made often prevents one from making a localizing diagnosis. We have had patients who would have had homonymous hemianopsia, which would have given us a lead as to the seat of the trouble, but superimposed on this was choked disk and atrophy. However, in the last stage of choked disk, Gunn's last stage, it is not always that blindness comes. Some patients have had improvement after they have gone on to this advanced stage. Specific treatment, it seems to me, we do not need to speak of much to-day—the specific treatment for six months of Allan Starr, Horsley and others. The Wassermann should be made of course; then we will know whether we are justified in waiting six months. It is true that a glioma of the brain is held up in a measure by the administration of iodids and the subjective symptoms are somewhat improved, but the changes in the eye-ground advance in spite of it.

Dr. Sherman Voorhees, Elmira, N. Y.—What has been driven home to me is the fact, that these cases come to the ophthalmologist so late. They have been treated by their family physicians, symptomatically all the way through until the time has gone by when anybody can do much. But for vomiting and for the relief of the extra-mental symptoms that occur late in brain tumor, I believe decompression is warranted. I have had a number of decompressions done—two just recently—in which the vision failed rapidly after the decompression. It occurs, not because of the decompression, but because of the changes inaugu-

rated prior to the operation; but it seems to come on more rapidly after the operation. The temporary amaurosis Dr. Cushing speaks of I have taken largely from the statements of the patients. In one case the patient said the first thing he recognized was this temporary blindness, which would clear up. That case had gone on to complete blindness before any neurologist or ophthalmologist had been consulted. It was simply to call attention to some things in the differential diagnosis that I have reported the cases. In a case which I have had of subtentorial decompression the patient came to me with a neuritis occupying about seven-tenths of the right disk, with absolutely no change in the nerve-head until about eight weeks following, when there was a neuritis on the left side, but with deafness in the left ear. The patient was a woman of 62. At the operation we found a tumor of the left hemisphere of the cerebellum.

The Optometry Question.

Dr. Edward Jackson, Denver, takes up the claims of the advocates of the so-called optometry school and says, in discussing it, two important facts should be held in view: 1. The process of estimating the refractive condition of the eye is a distinct technical process differing altogether from other therapeutic, surgical or diagnostic measures. 2. Errors of refraction and their measurement are of general interest because of their broad general influence on health. All attempts to escape this relation of glass fitting to health must fail and these two facts bring the measuring of the refraction of the eye within the limits of the healing art. The optometry question arises from the fact, that certain persons deny this relation and claim that it is entirely apart from the practice of medicine. They have succeeded in securing so-called optometry laws based on this assumption in a number of states of the Union and in several provinces of Canada. Jackson takes up the arguments for the optometry school, especially those offered by C. F. Prentice, president of the State Optometry Board of New York, and points out their falsity and fallacies, especially their claims that they are entitled to be called doctor, etc. as showing that they do not honestly repudiate the relation of their work to the healing art. He asks whether there shall be one or several professions of medicine and says that the precedent of

dentistry has an important bearing on the solution of this question. Ophthalmology is different from dentistry, which has in its way developed outside of the medical profession. Everything that has been learned in regard to refraction, etc., has practically been done by physicians. He would have every optometry law hereafter enacted or amended make it impossible for these opticians, who claim their work is not dependent on the science of medicine, to assume the title of doctor, and he thinks that the adequate teaching of ophthalmology should be insured in the medical school and specialists be trained not by picking up their knowledge by practice after graduation, as is largely the case at present. The establishment of the degree of Doctor of Ophthalmology, and of the course leading to that degree in the University of Oxford points to a practical way of meeting the need of the profession and of the public for some authentic evidence of fitness to practice ophthalmology. With such a degree made possible the false conditions out of which the optometry condition has grown would be swept away.

Dr. Jackson then read the following resolutions which were unanimously adopted by the Section and referred to the House of Delegates where they were approved.

Proposal for Better Ophthalmologic Training.

Whereas, A thorough preparation for ophthalmic practice requires the study of certain subjects not demanded of the candidate for degree of doctor of medicine.

Resolved, That the American Medical Association, through its Section on Ophthalmology and its House of Delegates, expresses the desire that at an early date, courses in ophthalmology requiring previous graduation in medicine and one year's work in an accredited ophthalmic hospital and dispensary service shall be established in each medical school possessing the necessary facilities.

Resolved, That the Council on Medical Education is hereby requested to consider the curriculum for such a course.

At the end of the reading of his paper Dr. Jackson offered some resolutions concerning the establishment of special courses in ophthalmology in medical schools and moved their adoption.

DISCUSSION.—Dr. W. E. Lambert, New York.—The passage of the optometry law in New York was due to

the indifference of the profession at large, and to certain unfortunate conditions as to representatives of the ophthalmologists in Albany at the time the opposition was made to this law. I went to Albany with the committee of the medical societies and endeavored to oppose the passage of this bill without any success, and the reason for it was that we had no support from the profession at large, and very little even from our colleagues in ophthalmology. I therefore think that one of the first and most important things to do in opposing this thing is to educate our fellow doctors as to the evils and dangers of optometry. It is surprising how many medical men in New York City refer their headache cases to the opticians. One optician had a list of 500 physicians who sent their cases to him for glasses. A physician in New York took his patient himself to one of these optometrists to have his eyes treated. This patient came under my care subsequently. He had albuminuric retinitis and died in one year. The New York Ophthalmological Society was lukewarm on the subject until recently when they were stirred up by the action of Columbia University in establishing a course in optometry, which was done without the knowledge of the medical faculty. Dr. Thompson presented the subject to Dr. Butler and he promised to look into it. The result is that while they have not decided to withdraw the course they have modified it so that it will not be particularly objectionable, withdrawing the word optometry. It has been a very serious handicap to the opposition.

Dr. Sherman Voorhees, Elmira.—Last winter I prepared a letter to the profession about my city, some 500 or 600 men setting out the status of the opticians and what harm this New York law had worked, and also stated to them that many physicians, as Dr. Lambert has said, were sending their patients to the opticians, or optometrists. The replies which I got to that letter were very gratifying. I think it did a great deal of good. I was not aware that the letter would fall into the hands of the committee of the A. M. A., but it did, through Dr. Thorington of the Pennsylvania Society. I believe it would be a good plan for the ophthalmologists to call the attention of the physicians personally to the working of this law. The optometrists do a great deal of damage. I have operated three times for glaucoma in the past year in cases in which the optometrist told the patient his eyes

would be all right and they could cure him. They tell the people that if there is anything the matter with their eyes they will send them to the ophthalmologist, but as we know, many diseases of the eyes cause no local manifestations.

Dr. W. H. Roberts, Pasadena.—We are face to face with a real condition. The untrained physician has no business to refract or to do eye work. I have seen some refracting just as poor, if not poorer, coming out of the offices of untrained physicians as out of the offices of the optometrists. I am unalterably opposed to their doing this work. If the medical profession are going to take this work out of the hands of the optometrists and put it into their own hands where it rightfully belongs, they have got to raise their own standards. I am heartily in accord, therefore, with this resolution that a graduate degree should be required of all men doing eye work. We must begin with the profession. I do not believe the attempt to alter public opinion or the opinion of legislators is going to help matters.

Dr. F. Park Lewis, Buffalo.—Dr. Roberts has said very much what I had in mind. We are never going to get rid of optometry, existing as it does by simply opposing it. I think if we were to get together the records of the bad work of the untrained doctors they would at least very nearly equal that coming from the optometrists. Dr. Jackson has struck the root of the matter. The legislators assume that we have personal reasons for our opposition, and until we can raise our own standards—limit the practice of ophthalmology to those who are trained in ophthalmology, by the adoption of a degree or some estimate by which there can be assurance that ophthalmologists are qualified, we are going to have optometrists and they are going to be recognized by the states.

Dr. J. A. Donovan, Butte.—I have had several letters during the last year asking why our Governor endorsed the optometry law in Montana. The state of Montana has a law granting the title, doctor of optometry, or doctor of something. But it has already been mentioned that the bill was not a compromise, but a trade. The physicians who introduced the bill simply made a trade with these fellows that if they would support the amendment to the medical practice act, the physicians' friends in the house would vote for the other bill. We had already been pledged

in the legislature to support this bill and we were practically bound to do so. There is one thing about the resolution as it stands. We are already kicking about too many medical schools, and I believe the resolutions should be a little more specific on what the qualifications should be. I would be in favor of sending it back to the committee to make the recommendations more specific and more explicit as to qualifications and as to schools.

Dr. Melville Black, Denver.—I want most heartily to second this resolution of Dr. Jackson. As far as the objections raised by the last speaker are concerned there will be no trouble. Any school which is qualified to confer a medical degree would be qualified to take up this post-graduate work. New schools could not spring up at the present time for the reason that it is becoming more and more difficult to obtain qualifications to confer the medical degree. The degree of Doctor of Ophthalmology, we hope, will be conferred in Colorado within the next year by the University of Colorado. This seems to me the only intelligent way to meet this situation. They are putting it right straight up to us and we have got to meet it. Otherwise we are not capable of showing where the medical man is more able to do these things than the optician.

Dr. M. W. Ward, Woodland, Cal.—The state of California is one of the oldest states that has worn the yoke of optometry: Dr. Pardee, one of our members, sat in the Governor's chair and signed the bill that makes this kind of legislation in California the oldest in the United States. That shows about how much interest the ophthalmologists in the state of California have in this question. A few years after that the American Medical Association took this up and had committees appointed in the different states to arouse the ophthalmologists: Dr. Ellis and myself were appointed on the committee in this state. We chose Dr. Ferguson as the Representative in the legislature to do this work. He was not an ophthalmologist but he was an effective man before the legislature. But nothing was done. This law was passed and we have been living under it about six years. California has worn this yoke as long as any state in the Union for the simple reason that we look to the other states to arouse a sentiment on this subject, and see that ophthalmology means something beside fitting eyes with glasses.

Dr. H. S. Miles, Bridgeport, Conn.—We were greatly aided in our state by Dr. Bossidy, of the committee on Optometry, and if there are states that have not laws I would advise the assistance of Dr. Bossidy. A great many ophthalmologists sell glasses. This should not be. It is no part of the physician's work. I think if we do it we lose somewhat the respect of the patient, the optician and ourselves.

Dr. Hiram Woods, Baltimore.—Dr. Black says it will not be long before they will be ready in Colorado to confer the degree of Doctor of Ophthalmology. That is exactly the degree a number of these quacks are disporting themselves with in the East, and they buy a diploma from various schools after a six weeks' course. I opposed one of them in the legislature last year. We had a close call in Maryland a year ago. A doctor from Baltimore, a professor of obstetrics, was approached by the opticians and convinced that this thing was an advance in education. He introduced the bill and the night after its introduction he walked into the University Club where four or five oculists were discussing it. They convinced him of the iniquity of it and the following morning he presented the amusing spectacle of opposing his own bill and of trying during the rest of the session to defeat it. Then the opticians sent out cards all over the state asking physicians whether they endorsed this bill to set up a standard of education for opticians. They got from 500 to 600 replies from physicians saying they did endorse it. A lot of these, of course, found they were in the wrong, and others asked what they should do about it, and it brought out some opposition. During the hearings when we were trying to convince the committee of the legislature that spectacle fitting was a part of medicine, one question was asked by a committeeman of an optician: "Do you know how to fit glasses?" The optician spoke up and said, "We are the specialists to whom these things can be referred by the general practitioner." On this statement it was reported favorably and it passed the House because it had medical endorsement. It passed the Senate because certain politicians traded it for something else, and afterward it was vetoed largely through the personal influence and personal work of Dr. William H. Welch.

If there could be written by such men as Edward Jackson, Dr. Thompson and others a clear, concise and brief paper which

would appeal to the laity, and to the average legislator, presenting in a way that a layman could understand the fact, that ophthalmology is a part of medicine and that this spectacle fitting is a part of ophthalmology, with reference to the general health, it would go a long way toward helping the situation. The average legislator is too busy to read large reports. About four pages issued by a special committee of this Section that would appeal to the comprehension of a layman would go a long way. They do not want to encourage quackery. They simply do not know. That was the difficulty we were laboring under in Maryland last year. I do not know where such literature exists, but I do believe it would be an enormous help to us in our future fights.

Dr. S. L. Ledbetter, Birmingham.—Alabama passed a bill providing for an optometry board but the Governor vetoed it. He said optometry as he conceived it was a mere matter of fitting glasses and was not a profession. The way we propose to get at that in Alabama is to limit and describe the things that belong to medicine and then enact laws regulating the practice of medicine, so that anything that impinges on these lines will be an infringement of the practice of medicine. As I conceive it, that is the only way we can do to shut them off—that is, by including in medicine the things the optometrists want to take up.

Dr. J. H. McLeod, Santa Rosa.—I cannot see where we are going to be benefited by extending any evil that already exists by passing it on and putting it into the hands of every general practitioner. I believe if the same energy were expended in educating the general practitioner to send patients to the proper source, and if the general public were educated to go to the proper source, you would do more good. It means an extension of the present evil. The general practitioner has no time to practice ophthalmology and will not study the subject. With a little information he will attempt to do a great deal. Educated people are not going to the optometrists as they formerly did, and they can be educated to go to the oculist instead of to the optician, and it only requires a matter of time to educate them along that line.

Dr. Edward Jackson, Denver.—I should like to ask the last speaker what privilege he or I or anybody else in this Section has that is not in the hands of every practitioner of medicine as

to practice before the law or before the people. The idea here is to create a distinct class, distinguished by a special education dealing with ophthalmology, and it is to that class his patients should be referred. I can conceive of no better educational work in the general profession than this. This special course is based on the complete medical course, including not less than one year—not six weeks or three months or six months—in some post-graduate school and passing a special examination before university examiners who examine for the other post-graduate degrees in the university, sustaining a very definite standard. For instance, in the University of Colorado we propose to grant the degree of Doctor of Ophthalmology, to make it a genuine university degree, and when this has been done it will not be taken up by any man who chooses to have that distinction.

I want to commend the clause in my paper in the direction of Dr. Ledbetter's suggestion. When it was announced in the papers that the compromise optometry bill had been introduced into the Colorado legislature, some of the men here very quickly had letters from Dr. Thorington, Dr. Bossidy and others in the East asking about this compromise bill, and we replied to them and gave them our view of it. It was taken up by the optical journals all over the country. The opticians in Colorado had formed a national optical society and from that body a committee was appointed to stop that bill. They did stop the bill. It was introduced as their bill at their request by the Health Officer of Denver. This is why they stopped it:

“Nothing in this act shall be construed to apply to persons licensed to practice medicine in this state, or to give any person the right to attach the title M. D., surgeon, doctor, physician, oculist, ophthalmologist, eye-specialist, doctor of refraction, doctor of ophthalmology, doctor of optometry, or any word or abbreviation to his name indicating that he is engaged in the treatment or diagnosis of diseases of, defects, or injuries of the human eye, or to use drugs or medicine in any form for the treatment or examination of the human eye, or to use any therapeutic measures or agencies other than glasses for the treatment of the human eye.”

The optometrists pulled it off very quickly, and if such a clause was introduced into every bill, or such an amendment was

insisted on by every ophthalmologist to be put into every bill or into existing optometry bills, not an optometry bill in the country would do a bit of harm.

With reference to the resolutions, they are not as full as they might be made, and yet they should be brief.

The final resolution: "Resolved, That the Council on Medical Education is hereby requested to consider the curriculum for such a course"—this is the psychological moment to consider this. The President of the American Medical Association recommended a fifth year, as he put it—an internship in a hospital for one year. The Council on Medical education in their report to the House of Delegates recommended the fifth year, looking to being added on after the completion of the present course, whether the degree should be given at end of the four years or whether it should be referred until the end of the fifth year being a matter to be determined. This very disposition on the part of medical educators to raise the standard should be taken advantage of, and here is a way for us to raise the standard of things with reference to ophthalmology, and that is the thing we have in mind to do.

Tuberculous Cyclitis, Following Nonperforating Injury to the Eye.

Tuberculosis Traumatic Cyclitis, reported by Dr. Oscar Dodd and Dr. F. Lane, Chicago. The patient had been struck by a baseball ten months before, the injury being followed by some inflammation of the eye; a few months prior he had had an injury from a stone. The 10-year-old patient gave an indefinite history of not having seen so well with that eye as with the right eye but did not connect it with the injuries. His general health was and had been good but he had complained of headache and drowsiness at the time of the appearance of the eye trouble. There was no tuberculous or luetic history in the family. The right eye was perfectly normal but the sensitiveness of the left prevented its full use. The ophthalmo-tuberculin tests gave no reaction in the right eye. The disease progressed. Judging that the corneal opacity and the ciliary trouble were tuberculous, he was treated with tuberculin and there was some improvement, but later the conditions were worse and the diagnosis of a tumor

rupturing the lens capsule was made and the eye enucleated. After that the irritation of the right eye, which had been marked, subsided and vision became normal. The pathologic report by Dr. Lane gave the following anatomic diagnosis: "1. Rupture of the retina following trauma. 2. Chronic plastic iridocyclitis limited to lower part and consisting of two stages: (a) an old affection resulting in the formation of cicatricial tissue; (b) a recent affection of the ciliary body which has spread out in all directions, invading the iris and episcleral tissue, evidently along the perforating vessels and characterized by the formation of nodules of round, epithelial and giant cells with central degeneration, and containing tubercle bacilli—a formation which must be considered miliary tuberculosis." Dodd calls attention to the following very unusual features of this case: the rupture of the retina in the region of the ora serrata as the result of a contusion, and an anterior tuberculous uveitis manifesting itself several months after the injury, with negative results from the diagnostic use of tuberculin.

Dr. B. F. Church, Redlands, Cal.—I do not wish to take part in the discussion along the lines of the paper, but I have had such results in the treatment of tuberculous keratitis in a patient with tuberculosis by means of guaiacol in 5 to 10 minim doses that I wish to report it. I think it is a much shorter route than resorting to tuberculin and is certainly much easier.

Dr. John E. Weeks, New York.—The appearance of the slight exudate which the doctor speaks of is, so far as I have observed, quite characteristic of tuberculous infection. This exudate occurs in cases of tuberculosis of the iris, and of the uveal tract further back. It is a very white exudate, fairly limited and not accompanied by hemorrhage or the appearance of vessels in the exudate. The iris is thickened in addition. These masses of exudate have the appearance sometimes of tufts. I would like to ask the doctor whether the sample of tuberculin that he used was reliable. I have never failed to get a local reaction by the subcutaneous injection of 3 mg. I have failed in using 1 mg., and in one or two cases 2 mg., but 3 mg. has never failed. The Calmette and the von Pirquet tests are, in my opinion, of no consequence unless we are introducing into the circulation or into the system more than 0.5 mg. T. O., as we get the reaction

when the tuberculous lesion is in some other part of the body. Unless in connection with these tests we get a local reaction we cannot say the condition in the eye is tuberculous. Now 10 mg. of Preferred T. O. will often produce a reaction in the normal individual who has not tuberculosis, and it seems to me incredible that this preparation of tuberculin was reliable.

In the treatment of tuberculosis, I have had two or three relapses because the tuberculin was discontinued too early, but a resumption of its use brought about recovery.

Dr. J. A. Donovan, Butte.—Dr. Weeks introduced an innovation about the reaction of tuberculin that I thought about in connection with this case. I have a series of six cases under treatment now that I had been treating with one of the local tuberculins. In two of these cases in which I wasn't getting as much result as I expected I switched to a German preparation. One woman and one man in whom I got practically no reaction at all before were put in bed sick, with an elevation of temperature. A laboratory man said tuberculin wasn't standardized at all and that I shouldn't have done it. I treated one case in St. Paul some years ago with tuberculin with apparently beneficial results, but in two or three instances I had to go back to guaiacol. It is very much more positive so far as improvement is concerned than tuberculin.

Dr. Oscar Dodd, Chicago.—The exudate as mentioned by Dr. Weeks was suggestive of tuberculosis; so much so that I could hardly believe the fact of not getting a reaction. As to the reliability of the tuberculin. It was the preparation used in the hospital and which they had gotten results with. I should have made control tests. The tuberculin test was not given until after the eye was really rather quiet. Under atropin and dionin the eye would quiet down and remain so until I stopped the atropin again. The tuberculin test was not given until the latter part of June on account of the fact that the patient would not consent to go into a hospital until that time, and the eye made no particular change so far as I could see following that. About the 13th of August he went away on a vacation. The eye remained quiet until about two weeks before he returned, on October 20, when the rapid changes in the lens and eye necessitated removal.

The other eye was very much irritated throughout the case. He was unable to use it to any extent.

The Venous Pulse and Blanching of the Retinal Vessels Induced by Making Pressure on the Eye-Ball; An Index to the General Blood-Pressure.

Dr. Melville Black, Denver, calls attention to the blanching of the retinal vessels caused by pressure on the eye-ball, together with production of the venous pulse, as an index to the general blood-pressure. This occurs especially in young and middle-aged persons and is of less value in general arterio-sclerotic conditions and old persons. If, however, while examining the eye-ground of a person aged 30, we apply pressure to the eye-ball and find that we cannot cause the venous pulse or blanching of the retinal vessels we have good reason to suspect increased blood-pressure and invariably instrumental tests will confirm the suspicion. This early recognition of high blood-pressure may be important. This does not mean that instrumental tests are not useful but rather suggests the need of their careful use to confirm the existence of the condition. He has been unable to find in the literature any mention of this pressure test but will be glad to give due credit to any one who can prove priority in its description.

Dr. H. S. Miles, Bridgeport, Conn.—This test of Dr. Black's seems to me to be a very valuable one. As we are now paying much more attention to blood-pressure than formerly, it must be a great advantage to have a ready and reliable index which we can easily apply in a few moments. Not knowing of this procedure before reading the paper, I have not yet used it enough to enable me to estimate the amount of pressure exerted by my finger, but I expect to find it a great aid in the future.

Dr. Edward Jackson, Denver.—I have made some application of the test, and I am sure that doing it frequently it will every once in awhile throw some very interesting and really important light on the case. Within the last two weeks I came across a patient in whom I applied the test. By rather firm pressure, I could very often get the arterial pulse, and perhaps this is a more direct means of estimating the arterial blood-pressure than by the venous pulse. In this case that I speak of I found it was impossible to produce any change in the arteries or any arterial pulsation by pressure that commenced to make

the cornea steamy. The haziness in the cornea began to appear before the change in the vessels, which indicated high blood-pressure. As Dr. Black says, we will refer to the sphygmomanometer to settle these questions, but I think outside of that it would be perhaps the most available means of testing the blood-pressure. It is the same principle as is used in testing the capillary circulation by emptying the capillaries by pressure, though it is the length of time that it takes to refill that indicates the condition of the circulation. In the veins also the time it takes to refill is valuable and worth watching. I am inclined to think that gives more information about the general state of the intraocular circulation. I have not correlated my observations sufficiently to decide that, but that suggested itself to me. It is a very interesting new method that can be applied very easily. Just place the little finger at the edge of the orbit, and then, pressing as firmly as you choose on the edge of the orbit, make pressure on the eye-ball through the lower lid.

Dr. Melville Black, Denver.—I never tried the pressure by the method Dr. Jackson speaks of. That might be desirable for the reason that many use the ophthalmoscope with reflected light. I use the electric ophthalmoscope and it does not get in the way of the source of illumination. I have been using the index finger and applying it to the external canthus, but I can see that the other method would be better. I shall watch closely for that blanching effect on the disk. That unquestionably is an important point. I had been following more particularly the larger vessels and you can see this blanching way out into the retina very distinctly. In a child one can squeeze almost all the blood out of the vessels, so that there is practically nothing but the empty vessel walls. This would be particularly useful in cases of embolism of the central artery of the retina, where, as there is a certain amount of damming back in the venous circulation, one can empty the vessels so that there is nothing but the vessel walls, and can determine exactly how much blood there is in the vessels, which is often important to know. One can then readily determine the collateral circulation, or whatever circulation there may be present in these cases. But the test as I proposed it was for the larger vessels, to determine the actual hardness of these vessels, and possibly the state of the blood-pressure from the way they act.

(To be continued.)

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (P. & S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
819 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honore Streets.
Ills. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Poli.: Chicago Policlinic and Hospi-
tal, 174 E. Chicago Avenue.
P.G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XX

CHICAGO, SEPTEMBER, 1911

No. 8, New Series

SPHERO-CYLINDER TRIAL LENSES.

BY JOHN NEELY RHOADS, M. D.

PHILADELPHIA.

Having felt the need of a compound trial lens, just such as would be worn by a patient, I have had J. E. Limeburner Co. make me a set of sphero-cylinders as seen in the accompanying table, with which I can do all my refractions. It will, doubtless, be a surprise to some to learn that any and every case can be correctly refracted by using sphero-cylinders alone (granting that the wearing of prisms is useless).

For example, we will suppose that a case needs a plus two cylinder at ninety degrees. In testing it with two sphero-cylinders we have the following formula:

$$\begin{aligned} &+0.50 \text{ Sp. } \odot +2.50 \text{ Cy. ax. } 90 \\ &-0.50 \text{ Sp. } \odot -0.50 \text{ Cy. ax. } 90 \\ &\quad +2.00 \text{ Cy. ax. } 90 \end{aligned}$$

which shows after cancellation that a plus two cylinder remains.

The same result may be reached by many different ways, for instance:

$$\begin{aligned} &+0.50 \text{ Sp. } \odot +1.75 \text{ Cy. ax. } 90 \\ &-0.50 \text{ Sp. } \odot +0.25 \text{ Cy. ax. } 90 \\ &\text{by cancellation. } +2.00 \text{ Cy. ax. } 90 \text{ remains} \end{aligned}$$

I think it must be just as apparent that two sphero-cylinders rightly selected will make a sphere. To illustrate:

$$\begin{aligned} &+2.50 \text{ Sp. } \odot -0.25 \text{ Cy. ax. } 90 \\ &-0.50 \text{ Sp. } \odot +0.25 \text{ Cy. ax. } 90 \\ &+2.00 \text{ Sp. } \odot \text{ after neutralizing a } +2.00 \text{ Sp. remains} \end{aligned}$$

It would be superfluous to show that this could be done in a hundred different ways:

To be sure, I am not advocating that plain hyperopic cases should be refracted with sphero-cylinders, that would be as absurd as to test cases needing sphero-cylinders, with spheres and cylinders, when it could be quicker and better done with a com-

pound trial lens. I advocate, by all means, the use of spheres alone, or cylinders alone when they are needed, but I most strongly urge the use of the sphero-cylinders in compound cases.

A LIST OF SPHERO-CYLINDER TRIAL LENSES.

+ .25 sp. () + .25 cy.	— .25 sp. () — .25 cy.	— .25 sp. () + .25 cy.	+ .25 sp. () — .25 cy.
+ .25 sp. () + .50 cy.	— .25 sp. () — .50 cy.	— .25 sp. () + .50 cy.	+ .25 sp. () — .50 cy.
+ .25 sp. () + .75 cy.	— .25 sp. () — .75 cy.	— .25 sp. () + .75 cy.	+ .25 sp. () — .75 cy.
+ .25 sp. () + 1.00 cy.	— .25 sp. () — 1.00 cy.	— .25 sp. () + 1.00 cy.	+ .25 sp. () — 1.00 cy.
+ .50 sp. () + .25 cy.	— .50 sp. () — .25 cy.	— .50 sp. () + .25 cy.	+ .50 sp. () — .25 cy.
+ .50 sp. () + .50 cy.	— .50 sp. () — .50 cy.	— .50 sp. () + .50 cy.	+ .50 sp. () — .50 cy.
+ .50 sp. () + .75 cy.	— .50 sp. () — .75 cy.	— .50 sp. () + .75 cy.	+ .50 sp. () — .75 cy.
+ .50 sp. () + 1.00 cy.	— .50 sp. () — 1.00 cy.	— .50 sp. () + 1.00 cy.	+ .50 sp. () — 1.00 cy.
+ .75 sp. () + .25 cy.	— .75 sp. () — .25 cy.	— .75 sp. () + .25 cy.	+ .75 sp. () — .25 cy.
+ .75 sp. () + .50 cy.	— .75 sp. () — .50 cy.	— .75 sp. () + .50 cy.	+ .75 sp. () — .50 cy.
+ .75 sp. () + .75 cy.	— .75 sp. () — .75 cy.	— .75 sp. () + .75 cy.	+ .75 sp. () — .75 cy.
+ .75 sp. () + 1.00 cy.	— .75 sp. () — 1.00 cy.	— .75 sp. () + 1.00 cy.	+ .75 sp. () — 1.00 cy.
+ 1.00 sp. () + .25 cy.	— 1.00 sp. () — .25 cy.	— 1.00 sp. () + .25 cy.	+ 1.00 sp. () — .25 cy.
+ 1.00 sp. () + .50 cy.	— 1.00 sp. () — .50 cy.	— 1.00 sp. () + .50 cy.	+ 1.00 sp. () — .50 cy.
+ 1.00 sp. () + .75 cy.	— 1.00 sp. () — .75 cy.	— 1.00 sp. () + .75 cy.	+ 1.00 sp. () — .75 cy.
+ 1.00 sp. () + 1.00 cy.	— 1.00 sp. () — 1.00 cy.	— 1.00 sp. () + 1.00 cy.	+ 1.00 sp. () — 1.00 cy.

I want to call particular attention to the great advantage of the sphero-cylinder trial lens in getting the axis of astigmatism. Surely nothing can approach this test. With the com-

pound glass placed in situ, just as it is to be worn, without the glare of several extra surfaces, no aplanation; no zigzagging of centers; no fusing of foci by a lens being in the spring of one and in part of the ring of another cell, but a single accurately marked lens makes it easy to swing for axis. In using this lens the operator hears less about the patient "seeing double," and "seeing tails" to the letters, etc., which is so commonly heard when the lenses are doubled and trebled. When the strength of the final glass has been selected, and the patient has been brought to the lowest line possible, it is an easy proposition to have the patient "fix" the last letter in the lowest line that he can read, and by the use of the "swinging system," rapidly select the correct axis within an error of one degree.

I predict that the sphero-cylinder trial lens will rapidly come into favor with most refractors in all cases, and will be especially appreciated by all in the handling of presbyopes. In testing presbyopia the compound lens may and should be put in the middle cell, and then the added glass should be placed in front or back, according to the position which the segment is to occupy. That is, in front, if the cylinder is low, in back if the cylinder is high. It must be seen that there will be less trouble in selecting the strength of the proper segment if the added glass is placed just where it is to be used. Consequently, there will be less likelihood of fitting the patient with an awkwardly short focus reading glass.

The accompanying table represents a set of sphero-cylinder trial lenses, which in conjunction with the old case makes a complete set of lenses. There should be more added. Some will insist in having the 0.12 included, and others may insist on the new lenses running up to two dioptries or more, but it will be found that these are a big help.

In conclusion, I want to say that with the use of the "swinging system," and the sphero-cylinder trial lens, with its axis notched on the outer edge of its ring, placed in a revolving cell; locked with a "V" shaped axis-pin, in said notch, and the axis still further marked by a long, delicate, traveling index, in juxtaposition with the pin; moving to and fro over a complete, circular, one degree-divided scale, brings axis finding to a scientific precision.

THE POSITION OF THE EYE THE ELEMENT OF
SAFETY IN THE EAST INDIAN EXTRAC-
TION IN CAPSULE.*

BY MYLES STANDISH, M. D.,

Williams Professor of Ophthalmology, Harvard University, Oph-
thalmic Surgeon, Massachusetts Charitable Eye & Ear Infirmary,
Consulting Ophthalmologist, Carney Hospital, Boston.

When Col. Smith of the East Indian Medical Service first proposed his operation for the extraction of the lens in capsule, the first thought of every operating ophthalmologist was that if the capsule of the lens was removed in its entirety there was nothing remaining to prevent an immediate prolapse of the vitreous. This fear was so prevalent in everybody's mind that few were willing to attempt the operation in the face of of the production of conditions which seemed certain to cause this catastrophe. Nevertheless, Dr. Smith reported only a small percentage of cases in which there was actual loss of vitreous.

I have done this operation a number of times and once had the pleasure of seeing several operations performed by Dr. Greene at Dayton, Ohio. In these cases it has been my fortune never to see a prolapse of the vitreous when the patient did not look downward during the manipulation, or immediately subsequent to the operation before the eye was closed. So strongly was I impressed with this fact that I decided to attempt to extract dislocated lenses by some slight modification of Dr. Smith's method when I should have the opportunity. It seemed to me that if an extraction could be made by this method in these cases without loss of vitreous and in the absence of any capsule to prevent that accident from the beginning of the operation, it would go far to substantiate the fact that when the eye looks up during the operation no loss of vitreous is to be expected. Since then I have had an opportunity to try this method in two cases.

The first was a man 42 years of age who had been struck on the right eye by a piece of wood on Nov. 26, 1910. The lens was dislocated upward, outward and backward so that only a crescent of its edge remained in the dilated pupil. An

*Read at the Meeting of the American Ophthalmological Society, June 13, 1911.

incision was made with one sweep of the knife as described by Col. Smith. There was an immediate escape of some fluid of watery consistency which probably came from a pocket of degeneration in the vitreous immediately about the dislocated lens. The patient was told to look up, which he did strongly. Counter pressure was made above the wound with the spatula and pressure applied with the point of the strabismus hook at the junction of the middle and lower third of the cornea. This was made directly backward toward the centre of the eye. The lens moved forward to the middle of the wound, the bottom edge turned upwards and the lens emerged from the wound without any loss of its contour. It was not in its capsule. Vitreous did not present in the lips of the wound during the operation. As the lens was opaque the capsule may have been ruptured by the original injury, or it may have been ruptured at the time of the operation. The capsule retracted toward the position in which the lens was before it was removed. The wound healed without incident and the pupil and the area of the coloboma of the iris was subsequently entirely free of lens capsule. The movement of the lens in this instance was similar to that described by Dr. Smith and to which lenses he has given the term "Tumbler."

The second case was that of a man 33 years of age, who was struck in the right eye on Jan. 11, 1911, by a piece of wood. He appeared at the Massachusetts Charitable Eye & Ear Infirmary three weeks after the accident referred by Dr. Carleton of Hanover, N. H. At that time there was a slight amount of conjunctival injection. No corneal scar was visible and with a moderately dilated pupil the edge of an opaque lens was seen dislocated downward and outward.

On Jan. 26, under cocaine, an incision was made as in the previous case with the result that a long roll of vitreous immediately presented between the lips of the wound for its entire length. The patient was directed to look upward which he did promptly and steadily. In this case no counter pressure with the spatula was made at the upper lip of the wound. The point of the strabismus hook was applied to the sclera below the margin of the cornea at a point judged to be beyond the greatest convexity of the lens. Pressure was made directly inward toward the centre of the eye. The lens moved steadily across the anterior chamber, the upper edge engaged in the

lips of the wound, and the entire lens emerged in capsule. There was absolutely no loss of vitreous; indeed, after the patient looked upward the vitreous did not present at the wound during the entire operation.

There was an uneventful recovery. The pupil was absolutely clear, the scar was flat. Any operator who had seen this operation would, I'm sure, have felt convinced that nothing but the position of the eye prevented the prolapse of the vitreous and when one considers the almost certain loss of vitreous in the removal of dislocated lenses by other methods of operation, the results obtained were certainly most happy.

The mechanical reasons why this position prevents the loss of vitreous are these:

After the incision has been made and the anterior chamber evacuated, the line of traction from the point of insertion of the inferior rectus to the lower edge of the wound passes directly through a considerable bulk of the anterior portion of the vitreous, consequently the traction on the cornea and sclera anterior in this line tends to compress the vitreous and to force it into the wound. Whereas when the patient looks upward, there is practically no compression of the vitreous; in the short distance between the lip of the wound and the insertion of the superior rectus.

It has been suggested to me also that the flexibility of the cornea which constitutes the lower lip of the wound, is much greater than the flexibility of the upper lip which is immediately supported by the sclera, therefore the line of traction on corneal lip tends to raise the centre of the wound to a very obtuse V-shaped angle which would favor the loss of vitreous.

Another factor of safety when the patient looks upward is that it is a movement which is not customary and consequently not so quickly and violently made upon suggestion. The normal amount of movement downward also is much greater than that in the upward direction. All these factors undoubtedly combine to make the upward position one of much greater safety.

REPORTS OF SOCIETIES.

REPORT OF THE PROCEEDINGS—SECTION ON OPHTHALMOLOGY AMERICAN MEDICAL ASSOCIATION, LOS ANGELES, CAL., JUNE, 1911

DR. ALBERT E. BULSON, JR.

FORT WAYNE, IND.

Chairman

(Continued from August issue.)

Subhyaloid and Vitreous Hemorrhages.

Hiram Woods, Baltimore, says that we confessedly know very little about subhyaloid and vitreous hemorrhages and a review of even the newest text-books showed that little regarding underlying conditions was known to justify presentation. Objective appearances are noticed and some authors stop at that. In only a few of the reported cases do we find much that is specially instructive. He therefore asked the aid of men of large clinical experience dwelling on a few special features, such as age, condition of the eye, systemic lesions, blood pressure future of the affected eye and of the patient, in his inquiries. Some of his correspondents had never seen a case. Some of the replies to his questions are reported and form a large portion of his article. He also reports five cases that have come under his observation. He finds from the consideration of the whole evidence collected that many individuals recover after having been totally blind from this cause, without the eyes showing evidence of the cause of the condition after recovery. He attributes these ocular lesions to toxins or organisms in the blood which manifest themselves by hemorrhages from the choroidal vessels. When the blood pressure was high it was usually associated with nephritis or arteriosclerosis and when it was low Black associates it with dilated heart and autoinfection and this, as above stated, Woods thinks must be the cause in most cases. Indicanuria plays a prominent role in the concomitant systemic conditions and it occurs without reference to blood-pressure. Tuberculosis may also be a cause. As regards treatment of these cases he thinks that we should view them about as follows: "1. In older people, *i. e.*, persons over 50, we usually have signs of arteriosclerosis, and if they are not present, the hemorrhage itself is evidence. Eliminating special causes of vascular changes—syphilis, nephritis, etc.; we have to manage, as best we can—or the internist has

to manage—the vascular changes. Along this line we will get our best results. 2. In young people, whether there is a single hemorrhage or many, we are dealing with some infection or disease capable of producing vascular changes. High blood-pressure throws suspicion on the kidneys, whether or not there are other symptoms of nephritis. Anemia, menstrual disturbances, etc. are but symptomatic of malnutrition probably due to infection. This may be tuberculous, and may be of some other kind, brought about through defective metabolism. Its presence and nature is to be determined by rigid laboratory examination. 3. Even when we can find no cause, and have to resort to the 'alternative' treatment, we should bear in mind that the cause has not been determined; that it is usually of a serious nature, and that it is well to give the patient the benefit of doubt with regard to the three causes apparently most apt to be found—tuberculosis, defective metabolism and nephritis."

Dr. W. H. Roberts, Pasadena.—I wish to report two cases, each with a distinct tuberculous history.

Case I.—Miss J. F. N., aged 64, had lived in California for several years and had recovered from a pulmonary tuberculosis. Vision O. S. had suddenly been reduced to counting fingers at five feet, and the vitreous was too full of blood to permit of a view of the fundus. Fundus O. D. normal; O. D. V. with correction 6/5. Later when the media of O. S. cleared an almost complete detachment of the retina was found, and this eye has had little more than light perception since. January of the following year she had a hemorrhage in her right eye, mostly in the nerve-fiber layer, but some blood escaped into the vitreous. This was the beginning of a series of small hemorrhages occurring in this eye extending through a period of over seven years. She has had two partial detachments of her retina to the nasal side of the disk, which have readhered. The patient has been under constant observation for over nine years.

Case 2.—J. F. B., aged 20, was first seen in September, 1910. He was in a sanitarium for pulmonary tuberculosis. He had noticed black spots before each eye for some two months. At this time the periphery of each retina showed flame-shaped hemorrhages, mostly about the veins. In December, 1910, he had two subhyaloid hemorrhages below the macular region of the left eye. His blood-pressure has never been taken, but the coagulometer

has shown very slow coagulation; hemoglobin 95 per cent. He was placed on calcium lactate but the hemorrhages persisted, and the coagulation of his blood continued to be tardy. Then as the hemorrhages seemed to come from the retinal veins, he was given fluid extract of hamamelis with immediate cessation of all hemorrhages up to the present time.

Dr. Adolf Alt, St. Louis.—I have had occasion to examine a good many patients with hemorrhage into the vitreous, but only once have I seen an eye in which there was a diagnosis of hemorrhage in the macular region; in that case it came from the retinal artery. The hemorrhage concerned chiefly the space between the retina and the hyaloid. However, there was some hemorrhage in the nerve-fiber layer. I think in most cases the hemorrhage comes from the retinal vessels and not from the choroidal or ciliary vessels. In all the cases I have seen there has been disease of the blood-vessels themselves.

Dr. Melville Black, Denver.—We have sometimes subhyaloid hemorrhages which run into hemorrhagic glaucoma, and I think possibly the most rational explanation of these hemorrhages would be that they come from the ciliary region. I saw a woman about two months ago who had a vitreous hemorrhage so large that no light reflex whatever could be obtained, and it was difficult to say that it did not occupy practically all of the vitreous space. She came in with a steamy cornea and a tension by the tonometer of plus 3. The eye-ball was exceedingly hard. She suffered some pain and some vomiting and was in distress. I hesitated doing an operation in this case but gave eserine and sent her home. The point is that a good many of these cases of vitreous hemorrhage are subhyaloid hemorrhage terminating in hemorrhagic glaucoma, one of the most serious conditions in the eye that we have to contend with. I have seen several of these cases and in every one there has been a general autointoxication along the line suggested by Dr. Wood. In this case a very careful laboratory examination showed a general retention of certain excretory products. This woman was placed on a glass of buttermilk every two hours, with a very plain vegetable diet. Nothing is hoped for from that eye, but the thing that we must consider in these cases is what is going to happen to the other eye, and similar accidents should be prevented. Low blood-pressures are interesting in this connection. If in a person with a blood-

pressure running 140 it should drop to 100 or 110, it becomes a serious matter, and the patient may get into trouble. Blood-pressures should be taken as an index, or rather a danger signal, and we as ophthalmologists are very poorly qualified to go into the necessary laboratory findings, and must have some one to do that in the most scientific and advanced manner possible. This will give us a decidedly better understanding of the etiology, pathology and treatment of these conditions.

Dr. Edward Jackson, Denver.—A very low blood-pressure has been associated with forms of intraocular hemorrhage and other hemorrhages also, and it has been suggested when there is thrombosis in the small veins that hemorrhage follows. While this does not apply to recurrent hemorrhages, it is a possibility that might be borne in mind in any intraocular hemorrhage in instances in which we see the patient for the first time, for temporary causes may have produced a hemorrhage entirely apart from tuberculosis, syphilis or arteriosclerosis. An engineer, a healthy man, came to me with a very clear explanation in his own mind of his intraocular hemorrhage. He had always been particularly subject to the influence of tobacco. He was one evening in a small room which got very thick with smoke, and he became markedly nauseated but did not vomit; there was no straining. When he saw the street light, he saw a little drop coming down in front of his eye and the next day presented himself with a very typical subhyaloid hemorrhage in the macular region. Absorption was complete and vision was restored to normal. I never could find any more probable explanation of that hemorrhage than that it was the temporary influence of the nausea producing the hemorrhage from a retinal vessel. I cannot conceive of such hemorrhages, which are sharply outlined in the retina, as having come from the advanced ciliary vessels.

Dr. William F. Mittendorf, New York.—The most serious cases are those in which the entire vitreous chamber is filled with blood. The vision, of course, is completely obscured. We cannot see any of the details of the fundus. I should like to mention here that one of the best remedies in my hands has been the administration of pilocarpin in very small doses, continued, in combination with massage. I have cleared up a good many cases by this means. Unfortunately, in many of them the destruction of the vitreous humor and the interior of the eye is so

complete that they resist all treatment. Fortunately, however, in the great majority of cases it is only one eye. The good eye does not necessarily follow the same course.

Dr. Carl S. G. Nagel, San Francisco.—I should like to ask the essayist whether he has tried in these cases fibrolysin thiosinamin. I know it is a drug somewhat discredited, but recently there has been published in the *Zeitschrift für Augenheilkunde* an article reporting results which were decidedly striking. I should like to refer to a few points I made in a report in *Ophthalmology* a few months ago. The wife of a physician suddenly lost her vision in one eye. An oculist was consulted and gave a bad prognosis on account of the hemorrhage in the macular region. This was a typical case of retinal and subhyaloid hemorrhage and a typical scotoma of umbrella shape. She recovered, as these cases generally do. There was a distinct history of articular rheumatism which had led to ankylosis of one elbow. The hemorrhage had occurred in one eye during the beginning of the menstrual period, and with the next menstrual period a very slight hemorrhage occurred in the other eye, the first eye having almost completely recovered in the meantime. Now in the second eye it would have been possible to make out from the ophthalmoscopic picture in what layer the hemorrhage was, although the woman had a slight, indistinct scotoma; but having the experience with the other eye she would observe it perhaps more distinctly than otherwise. But that led me to believe that these hemorrhages do occur sometimes in very slight form as in this case, and are overlooked and not rightly interpreted. It might be possible to use the inverted figure of the scotoma which occurs in these cases, being behind the nodal point, to make out the diagnosis.

Dr. H. W. Woodruff, Joliet, Ill.—I want to ask Dr. Woods whether he ever found any symptoms of hemorrhages from blood-vessels in other portions of the body associated with these retinal or subhyaloid hemorrhages. It always seemed strange to me that subconjunctival hemorrhages are so exceedingly common and we almost never find any symptoms of general disturbance. People come in the morning with a history of waking up and finding the appearance in the eye. I had a case once in a young girl of a subconjunctival hemorrhage without any history of traumatism or cough or anything of that kind and associated was a small

hemorrhage in the retina. She recovered without any visual disturbances at all.

Dr. C. D. Wescott, Chicago.—I have seen a number of cases such as Dr. Woods has described, and in my experience these patients past middle life with these hemorrhages have arteriosclerosis and the hemorrhages could easily be attributed thereto. In the younger patients it has been practically impossible for me or the the internist to find out why these large, especially recurrent, hemorrhages occur. I have seen them at 19, 18, 24 and 22. Autointoxication I believe is present in many of these cases, but we do not know how the autointoxication may contribute to the retinal hemorrhage. Dr. Woodruff's point in regard to hemorrhages in other parts of the body is important, and I feel that we should warn these patients with retinal hemorrhage, etc., that examination is a very important thing. The blood-pressure should be taken, and if it is found high the patient should have his life so regulated that he may not have subsequent hemorrhages into the retina, or perhaps, apoplexy, which has followed these cases of hemorrhage in the eye.

Dr. F. T. Rogers, Providence, R. I.—I wish to call attention to the difference between an exciting and a predisposing cause. I have seen two cases recently in which the predisposing cause was unknown, but the exciting cause was evident. One was the case of a lighthouse keeper who has had three attacks in the last year, and each one has come on within a few minutes of lighting the lamp. In another case the man was an electric light tester. It seemed to me that the exciting cause was the sudden impress of the exceedingly bright light.

Dr. John E. Weeks, New York.—We have a class of cases of hemorrhage into the vitreous occurring in young individuals that is unsatisfactory as far as etiology is concerned. These cases may affect one or both eyes. The hemorrhages are recurrent and ligation of the internal carotid and of the common carotid, I believe, in a few cases, has been done for the purpose of stopping them. I have seen two such cases in my practice. One I referred to in writing to Dr. Woods. Of course, those cases occurring from disease of the blood-vessels or in syphilitic affections, we know perfectly well about. They result, as Dr. Wescott has said, in not a few cases in apoplexy; but the cases that occur in the young we would like to have some further information regarding.

Dr. A. E. Bulson, Jr., Ft. Wayne.—I have had during the past sixteen or eighteen years a number of cases of subhyaloid hemorrhage in the young. The point which is of most importance is the etiology. When we can exclude kidney disease, arteriosclerosis, tuberculosis, syphilis and rheumatism we have very little left upon which to found a diagnosis, and particularly the etiology.

Some of the cases seen by me have been watched for a period of years. Most of my cases have been males, and a majority of them young farmers apparently in good physical condition. One case in particular was in the hospital for several weeks, and during that time was under the observation of several confreres, including a very competent bacteriologist and an internist. The patient was given the tuberculin and Noguchi tests, his blood and urine were repeatedly and thoroughly examined, and everything that we could think of was done to exhaust our means of arriving at a definite opinion as to the etiology. He was given potassium iodide internally, pilocarpine sweats, dionin, both subconjunctivally and by local application, laxatives and cathartics, restricted diet, and his blood pressure was taken. During the time that this man was under treatment in the hospital he would have hemorrhages, some of them occurring in the night while he was asleep, and at least eight or ten intraocular hemorrhages occurred while the patient was under observation. The patient finally returned home with instructions concerning diet, and the recommendation that he not engage in any very laborious occupations. He soon discovered that it did not make any difference whether he pitched hay or rested under a shade tree the hemorrhages occurred just the same. The strange feature about the case was that the hemorrhages usually cleared up in the course of time and the patient would have 20/20 vision and no discoverable sign of inflammatory or degenerative changes in the retina.

It occurs to me that if these hemorrhages come from retinal vessels there would be some evidence of it along the course of the vessels there, for I cannot conceive of repeated retinal hemorrhages being under observation without discovering that the hemorrhages really come from retinal vessels. My impression has been that the hemorrhage in these cases came from the ciliary body.

A few of the cases have been given the tuberculin test with

negative results. Others have not had the tuberculin test, and perhaps tuberculosis may play a part in the production of the hemorrhage in those cases. In several of the cases the Noguchi test has been given, and in others syphilis could reasonably be excluded. Mercurials and iodides have been given in nearly all of the cases.

Dr. William Zentmayer, Philadelphia.—It always appeared to me that recurrent hemorrhages and subhyaloid hemorrhages are different things. My experience is that the recurrent hemorrhages occur in young individuals, sometimes in one eye, not frequently in both, and that they lead to this peculiar proliferative inflammation which gives the bewildering ophthalmoscopic picture. We do not know where the disk is and see several layers of white, coalescent specks, and it is obscure and difficult to localize. The subhyaloid hemorrhages occur in older persons; there is usually one, and in one eye. In the first class of cases the hemorrhage seems to come from the ciliary body, and in the second class they most assuredly come from the retina. That has been proved. I cannot remember the authority; but in every case of the second variety the hemorrhage could be traced to the retinal vessels, and it could come not always just from the anterior layer, but from any layer. So that it seems to me there are two distinct classes of cases.

Dr. Edgar S. Thomson, New York.—The late Dr. C. J. Kipp, who was a careful and accurate observer, told me he had seen one of these hemorrhages occur. It was not one of the young type, but a patient over 50, and there were a few retinal hemorrhages. He was examining him with the ophthalmoscope when he saw a retinal vessel burst like a garden hose and the interior of the vitreous was flooded with blood immediately. That was such a unique experience that I thought it worth while reporting.

Dr. William F. Mittendorf, New York.—When the etiology is obscure I should like to ask Dr. Woods whether he has thought of the hemorrhagic diathesis?

Dr. Hiram Woods, Baltimore.—A detached retina is a result in quite a number of these cases that have been reported in the literature, and retinitis proliferans is another common result; the fibrosing result described by Dr. Zentmayer also. The detached retina brings up the source of the hemorrhage. So far as I can find out there is no very definite proof one way or the other

as to just where it comes from. Fuchs in his text-book seems to lean toward the retinal vessels as the source of the hemorrhage. On the other hand other authorities take a different view. I thought I quoted Dr. Weeks correctly about the uveal origin, and de Schweinitz, Berry and others put the hemorrhage in the uveal tract? The fact that retinal detachment follows would rather look like the hemorrhage came from the surface beneath that. Now one of the cases I allude to here occurred in a woman who was perfectly healthy, 29 years old, but it absorbed. She was given diaphoretics. The blood-pressure was 125. Under the diaphoresis and purgations a second hemorrhage occurred while the patient was in bed, as in Dr. Bulson's case. Later on she was given over to one of the best internists. He said to me, "That woman has bad teeth, and she is getting infection from some source. The teeth are all I can find and you had better have them attended to." There is no doubt that after a disgusting pyorrhea had been cured by the extraction of some necrotic teeth her improvement went on steadily. I do not give that as the cause; what I am giving is the associated facts. Dr. Mittendorf also speaks of one eye being usually affected. I think that is generally the case when we have any serious trouble of this kind. It is certainly the case with relapsing exudative choroiditis. A second attack will come in the same eye as a rule, and not in the other eye.

I want to express my approval of the view some have taken of these subconjunctival hemorrhages. I have in several cases found a little peripheral exudate that Dr. Woodruff spoke of; but de Schweinitz found that out some years ago. The necessity of recognizing subconjunctival hemorrhage is a matter of importance. Dr. Mittendorf's second question, as to the hemorrhagic diathesis may be answered by saying that I have not seen hemorrhages in other parts of the body; there was no leukemia or defective hemoglobin. They occurred in young people apparently in ideal health, except for the indicanuria and the pyorrhea, and in one case the positive tuberculin test. Dr. Rogers speaks of the predisposing and the exciting causes. In Dr. Thomson's case a young athlete who had been doing all kinds of stunts for years once in a pole-vault had a subhyaloid hemorrhage. What made him have the hemorrhage that time? It cleared up and he had no more. Some exciting cause does come in, but for the life of

me I can't tell what it is. I am only trying to find out the concomitant conditions that might act as causes, and I think the persistent turning up of tuberculosis and indicanuria, etc., we will find are possible causes in young persons. Of course, as Dr. Weeks says, we have got to differentiate these from the cases in older people with arteriosclerosis. Dr. Zentmayer thinks the subhyaloid hemorrhages do not recur. That has not been my experience. I have seen them recur in young persons. I think the vitreous hemorrhages are more common but in this particular case of the young woman of 29 with the pyorrhea she had two recurrences of subhyaloid hemorrhage and only one definite large vitreous hemorrhage.

Shortening of An Ocular Muscle by Tucking.

H. W. Woodruff, Joliet, Ill.—The various operations for shortening of the eye muscles and increasing their power says Dr. Woodruff, may be classified under three heads: First, the advancement operations proper; second, those in which the muscle is shortened but the natural insertion preserved, (a) the tucking operation and (b) section of a portion; third, those which are intended both to resect and to advance—the ones most frequently employed. None of these operations is usually considered unsafe but there is a real danger, he says, in attempting to secure an artificial insertion nearer the cornea, whether the tendon is resected or not. Moreover, when the conjunctiva is advanced or resected there is more or less permanent disfigurement on the spot. Woodruff gives a summary of the literature of the subject and describes a tucking operation of his own, in which he retains the important features of those of Worth and Wooten. He asserts that the operation is absolutely safe and permanently effective, devoid of permanent noticeable deformity and easy to perform under local anesthesia in any one over twelve years of age. The results of his methods are summed up as follows: “1. The highest degrees of strabismus may be corrected by tuckings with tenotomies of the opposing muscles. 2. Torsion is prevented by measuring the distance from the tendon insertion back to the point of entrance in the muscle and making both upper and lower correspond. 3. The method of tying the suture in the muscle prevents its splitting the muscle fibers while traction is made on it and when tied to the tendon insertion it is a physical impossibility for the muscle to become loosened as the traction is at

right angles to the direction of the muscle fibers. 4. By disturbing the capsule so little, considerable swelling is avoided (Wooten, *Ann. Ophthalm.*, July, 1902. p. 431), but by including the overlying capsule somewhat greater effect is produced. 5. By not sacrificing any portion of conjunctiva or advancing it, deformity and unsightly scar tissue are avoided. 6. A tucking of a given amount of muscle will result in not more than half as much correction in the position of the eye. In a convergent strabismus of 10 mm. it is well to tuck 15 mm. of muscle and tenotomize the rectus internus, leaving a slight undercorrection. For anatomic reasons a 15 mm. tuck is about as much as one is able to make. Then, too, the externus itself is about 50 mm. in length and a shortening of a greater proportion might easily impair its power of contraction. Motais has shown that the contraction of a rectus muscle necessary for its full physiologic movement is about one-half its length." The article is illustrated.

DISCUSSION. Dr. G. C. Savage, Nashville.—The operation described by Dr. Woodruff is a modification without improvement. Everybody knows that the tucking operation is mine so that I need not claim it in this presence. I am glad to have the endorsement of Dr. Woodruff and some twelve or eighteen others. The original tucking operation as described in my first writing is the ideal tucking operation of all, and I think I can show you why in a moment.

(Dr. Savage then demonstrated on the blackboard his incision and the different steps of the operation. The incision was a horizontal incision just below the margin of the muscle. The tendon, the conjunctiva, the muscle and the capsule of Tenon should be tucked. He described the operation further, illustrating where the needles should be inserted. The Price suture-plate is used and the sutures are passed through it and the knot tied on the plate. The operation should be done with silk and not with catgut. The stitches should be allowed to remain a whole week.)

The only advancement operation that is worth anything is the operation of Lagleyze. It is the ideal advancement operation in high degrees of squint. Shortening is better than advancement if it can be done. You never make an incision in the capsule at all in the Lagleyze operation. The conjunctiva must be held back until the stitch is taken. (Dr. Savage then illustrated

on the blackboard the method of introducing the needles): The Lagleyze operation differs from all other advancement operations in that the tendon is not cut.

Dr. F. B. Tiffany, Kansas City, Mo.—Instead of using two needles I would use one needle and I would use the catgut suture. I would merely divide the conjunctiva so as to expose the attachment of the tendon; then with a double thread I would go in at this point (indicating), grasping the root of the tendon in the sclera, and come out, enter the needle again and come out at another point (indicating). Then I would cut the suture so as to allow it to fall into three pieces, one at the lower part, one at the upper and one at the center. Then tie the suture, bringing the muscle opposite as far as I wish. I now close the incision and allow the catgut to be absorbed. There is no necessity of removing the suture.

Dr. Vard H. Hulén, Houston, Tex.—There never will be a muscle operation devised that eliminates all the objection of pulling on the sutures that hold the muscle. I had opportunity last year of presenting an operation that attempted to eliminate that important feature by putting through a double suture. It is not a question of whether we advance or whether we lap; that is a question of personal choice. But if we put a suture into the muscle, and a suture, we will say, into the sclera and pull the eye in position by pulling on them, we are breaking one of the most important rules of surgery, and that is, the pulling of tissues into place by pulling on the sutures. The way I got around that was by putting in the suture with the needle from without inward, under the muscle, and bringing it out, having that a double suture; and the same way on the other side. Now take two ends of the suture and tie them together and you have a traction suture. By crossing them over you can pull the eye into position to just the extent you want; then simply tie the other ends together to hold that position. That, I believe, is absolutely necessary for any ideal muscle operation.

Dr. Edward Jackson, Denver.—There is a principle with reference to sutures that I think is very often overlooked. If you put a stitch through this paper (demonstrating) and drag on it you can very readily cut that stitch out, and you can cut into the tendon or muscle, particularly in the direction of the fibers. If you take two thicknesses of the paper and put a suture through

both and drag on it you can tear the paper in all directions before you move the position of the sutures in the least. If you put the suture through the tendon and make traction from a distant point the tendon is cut, and even with Dr. Hulen's method the traction is made on the same opening as the permanent suture passes through. But if you bring the tissues together that you want to sew together before you use any suture, with a forceps, or in any other manner in a tucking operation, as Dr. Woodruff describes, bringing the two surfaces together and then putting the sutures through and tying them, you will avoid the necessity for elaborate sutures like those of Worth or Suffa and you will get absolute fixation without cutting. When it is an advancement operation, put the sutures into the sclera and pull the tendon forward in its proper position and then tie the tendon right down over the sclera. You can then leave in the suture until the tissues soften and it comes out, and there is no cutting and no tension on the suture. I think a good many elaborate operations for tendon tucking and advancement would not be in existence if that point were realized. The difficulty of putting a suture through a membrane and pulling on it from a distance is considerable when compared with putting the suture right through the tendon and through the tissue it is to be sewed to. Make the simplest suture possible; then tie it there and it will hold absolutely. The only thing about such a suture is that it tends to crinkle up the tendon; but this is avoided if two of the openings are close to the insertion in the sclera; there is then none of that buckling up when the suture is tightened.

Dr. James W. May, Kansas City, Kan.—I have seen Dr. Woodruff's operation and it certainly does seem to me to be an operation from which there is great permanent benefit. Personally I have not done the operation. Last May Dr. Woodruff operated on three patients for me. In one of them there was a convergence of 25 degrees. A tucking operation on the external rectus corrected 15 degrees and left 10. In another patient with the same convergence, 25 degrees, the tucking operation relieved 15 degrees. The other was a case of divergent squint and he did a tucking operation on the internal rectus and a tenotomy on the external, with a perfect result, and the man now has single binocular vision. It certainly seems to me that it is the operation of choice on account of its safety. The advancement operation

is attended with some dangers, especially in the hands of those who are not really adept. In placing the suture in the episcleral tissue near the cornea, as Dr. Woodruff has pointed out, a perforation of the globe can be done without much force. And also in taking up a bite in the suture you are very apt to take too small or thin a bite and have the sutures tear out. Ulcerations of the cornea have been known to follow operations for advancement. Just why, I do not know. It strikes me that interfering with the circulation or corneal injury was sustained and infection supervened. Faulty metabolism might have a bearing on this subject. In one of the cases he operated on for me I had an idea that the catgut sutures did not hold sufficiently long to produce a gluing together of the tendon and a permanent result. I should like the doctor to explain in his discussion if he ever had a case of that description.

Dr. C. D. Wescott, Chicago.—Dr. Woodruff's operation is certainly all that he claims for it; and as Dr. May has said, I believe it should be the operation of election for the novice in eye surgery. For a number of years I have done the single stitch advancement operation described by Dr. Jackson in his text-book. I believe I can secure a little more effect with it than Dr. Woodruff secures with his operation. I use finer silk and a finer needle than is used by most men. I have had the needles sharpened so that they will respond to the test for the point of the cataract knife. I have never, to my knowledge, penetrated the sclera; at least no untoward result has followed. I never have tried to hurry in this operation, but I know it can be done in six or eight minutes. I do not believe we gain anything in leverage by putting the sutures beyond the attachment of the muscle. I had in one case a slight infection which caused a weakening of my suture.

Dr. William Zentmayer, Philadelphia.—One thing bothers me, and that is the large effect Dr. Woodruff gets from his operation. I have used Dr. Savage's operation just for that reason. I used it before I came away from home and corrected only 15 degrees in one of my cases, and perhaps a little less in another. They were combined with tendon stretching of the opposing muscle at the time. I devised a needle just like that, because on two occasions I have seen the needle enter the anterior chamber. I have used it so that the operator can make the puncture from the

sclera outward. I once had a perforation of the sclera from sloughing. On the third day after the advancement, I permitted the child to be taken home. They did not return for five days, and when they came back the vitreous was protruding through the sclera. I took the child to the hospital and by energetic methods saved the eye. Five years later the child appeared in the clinic and it was interesting to see the scar in the fundus where the perforation had occurred, visible through the ophthalmoscope.

Dr. Oscar Dodd, Chicago.—This operation in my hands has fulfilled two objections which I have had to ordinary tendon tucking. One was the failure to get a sufficient result, which you can get with this operation. The other objection has been the bunching up of the muscle after the shortening. I have been surprised that the thickening has not been more than in the ordinary advancement operation. I have seen Dr. Woodruff in several cases get probably 30 to 40 degrees of shortening, bringing the eye around with one operation. In one operation in a blind eye the shortening was something over 40 degrees, and with a slight clipping of the center of the tendon I got a full correction. Care should be taken not to get too much, because the amount you get is absolutely held. I feel like commending the operation, although it is not a simple operation to do. If one goes into it with the idea that it is easy to pull up the muscle with the hook and bring the loop together, I think they will find the first time that they are mistaken. Without a skilled assistant I find it very difficult.

Dr. E. W. Alexander, San Francisco.—I have tried the operation that Dr. Hulén illustrated last year repeatedly, and I find that one or two of his remarks are important to follow. One is that you should expose the sclera in any advancement operation, and if you are going to do a tucking operation it would be as necessary as in the advancement where you cut the tendon entirely loose. Then you can judge just how far your sutures are extending above or below the original insertion of the tendon, and you can apply the new insertion in such a way that there will be no hyperphoria or hypophoria following your advancement operation. Another point is that a rather coarse grade of silk seems to me to be very much less liable to tear through and cut than a fine suture, and even a No. 4 or No. 5 can be used

with a narrow tendon in children without any difficulty in cutting through.

Dr. Robert W. Miller, Los Angeles.—I have been less inclined to do advancements in late years than formerly. While I have never seen in my personal work any actual damage as the result of too deep punctures, nor have I had any corneal sloughs, yet I have heard of these experiences in others. The fact that we do not gain a point of adhesion further in advance, which seems to have been pretty well demonstrated, is practically new to many of us. However, it seems to me possible that the anchorage being more extensive when we advance the tendon that it may be firmer, and the result of the operation may be in some way more accurate. Another point mentioned by another speaker is that of stretching the tendon. Dr. Davis of New York has done that pretty extensively for a number of years in these operations. I think the stretching often produces a good effect.

Dr. H. W. Woodruff, Joliet, Ill.—Dr. Savage speaks of tucking the conjunctiva along with the muscle and tendon. One point that I make in my paper is that the conjunctiva should be left entirely alone. It is simply a cover and has nothing whatever to do with the strabismus. I have seen and have had cases of deformity of the conjunctiva from shortening it, drawing the caruncle, which gives an unsightly appearance. There is no doubt about the ability to secure a very large effect if necessary, first by shortening and tucking, and then by tenotomy of the opposing muscle. I have never had any experience with Dr. Hulen's operation, but I agree with him that as yet no operation is ideal. I am very much obliged to Dr. Jackson for bringing out the point that sutures hold so much better through two thicknesses than one. The reason I chose to include the capsule was partly on that account and also on account of the fact that it seemed I secured a more permanent result if I included the capsule. The Worth suture is not an elaborate suture; it is an exceedingly simple suture; an ordinary double knot; the suture is simply placed through the tendon a second time. I am very sure that it is essential. In my endeavor to get a maximum effect it seemed to me if I got another hold on the muscle I would get a greater effect.

Dr. May referred to the cases which he permitted me to operate on. The photographs show the perfect effect in the di-

vergent case and the somewhat imperfect effect in the convergent cases, which simply follows out the rule which we all have to meet, and that is that there is much more to operate on in a divergent case; at least that is my opinion; you run so little danger of getting an over effect in divergent strabismus, but in the convergent form, especially if your tucking or advancement has failed to give you a perfect result, then there is that question of tenotomizing the internal rectus, and how much. In the case that Dr. May refers to I made the mistake of not tenotomizing it at all, because I had apparently secured a sufficient effect.

I used the pyoktanin-formalized catgut, and it is stated that it remains in the tissues for weeks, but I would not be surprised if occasionally it absorbed too early.

The Ocular Conjugate and Fusion Brain Centers: Only Two Axes of Ocular Rotations, and Only Two Planes of Reference.

Fusion Centers for the Eyes.—In a rather technical paper which is best understood in connection with the illustrations, G. C. Savage, Nashville, Tenn., gives his views as to the brain centers or the ocular muscles as modified by recent studies, especially the conjugate and individual centers pertaining to the extrinsic muscles, nine of the former and twelve of the latter. To demonstrate their existence is the object of the paper. He did not recognize in his former work that all ocular rotation, whether monocular or binocular, was in two planes. He then agreed with those who preceded him that every oblique rotation was round a fixed axis and that this axis was at right angles with the rotation plane, but this he says is not true. He declares that in the two axes, vertical and transverse, lying in the plane of the equator are effected all oblique rotations and that throughout such a rotation each of these two axes is itself in rotation; there are no fixed axes for oblique rotation. To demonstrate these points as above stated he gives a list of the nine conjugate centers of the brain and enumerates the muscles they control as well as those belonging to the fusion centers and described their working according to his theory in detail. The paper does not lend itself readily to an abstract.

DISCUSSION. Dr. Melville Black, Denver.—Once we get Dr. Savage's ideas straightened out a little they are not at all

difficult to follow. I believe we are greatly indebted to Dr. Savage for having attacked a theory of Helmholtz that seemed incontrovertible. I believe he has shown that Helmholtz was mistaken in certain of his teachings, and that it should be for a member of our Section to have positively demonstrated this fact is worthy of our consideration.

Dr. Hiram Woods, Baltimore.—Back as far as C. S. Bell's edition of Wells' text-book there is an excellent discussion of the individual action of each eye muscle, together with the position in which the individual action of that muscle will put the eye, and how that position will affect binocular vision; and how some of the results of that individual action are compensated for or removed by other muscles. For instance, it is stated that in convergence you have the interni working together on the primary horizontal plane. In lateral motion we have the externus of one eye and the internus of the other acting on the horizontal plane. In looking directly up the superior rectus pulls up and tilts the vertical meridian of the cornea inward; and that tilting is removed by the contraction of the inferior oblique. In looking down, on account of its oblique insertion, the inferior recti pull the eye down, tilting the vertical meridian of the cornea out, and the superior recti overcome that. Now with the exception of the introduction of these hypothetical centers and the term "cardinal rotation," wherein is Dr. Savage's method different from that taught us twenty-five years ago? Wells worked it out from the action of each individual muscle. Dr. Savage works out the identical thing, as far as the tilting gives place to these association centers. No one esteems Dr. Savage more than I for his scientific worth, but for the life of me I cannot see that we are any further ahead in the understanding of muscular action for the assumption of these centers, and in that way push off the whole question of associated brain centers, of which we know so little.

Dr. G. C. Savage, Nashville.—This instrument is built on the fundamental truth that the center of the macula is the posterior pole of the eye, and that the visual axis goes through the center of rotation, and my faith in that proposition has been backed by me financially and otherwise. I offered two years ago a thousand dollars to any man who would name a single phase or function of an ocular muscle or combination, normal, abnormal or

pathological, that I could not show with my muscle indicator. That the center of the macula is the posterior pole and that the judgment of the world will be that at no very distant day I have not the slightest doubt. I am sorry some discussion was not had relative to the motions of the eye. I won't take it as an indication that there is nobody here who understands it. I am sure very many here do understand it, but I think they are willing for me to continue the fight in a lone-handed way; but when the victory finally comes they will come under the flag and rejoice as I do.

Plastic Surgery of Eyelids.

F. P. Calhoun, Atlanta, Ga., recommends the Wolffe deep cutaneous graft as the ideal one to be employed in restoration of the lids and the cul-de-sacs in complete ectropion of the eyelids. He reports a case and describes the technic. There are two important steps to be remembered: First, the surface to be grafted must be denuded and must have sufficient blood supply to nourish a healthy graft; second, a graft be obtained of sufficient size more than to cover the area. He has always taken his grafts from the inner arm, and in one case took 5 from 2 arms. An oval graft is advisable, as the wound of the arm when closed then leaves a linear scar. The graft should not contain any areolar or fatty tissue, and the bleeding of the wound must be controlled lest a blood clot form beneath the graft. The details of the operation are given in full. While it applies best to flat surfaces, he has used the graft with success in 2 nose cases in which the alæ had been destroyed by burns, and in a case of burn in which the upper lip had been pulled high up on the cheek from the scar contraction. So far he has not had an infection or complete failure of the operation.

Dr. John E. Weeks, New York.—In burns of the skin either above or below, if the burn is extensive the margin of the lid is drawn well up to the brow, and in some cases the ectropion is complete. In these cases the margin of the lid, or what remains of it, the conjunctiva and the tarsus, with a portion, perhaps, of the orbicularis muscle, should be dissected from the underlying tissue, and it is well to attach the margin of the lid to the cheek by means of sutures so that the margin of the upper lid, if we are operating on that lid, overlaps the lower lid in its normal position from one-third to one-half an inch, in order to give as extensive an area as possible on which to apply the flap; because

we must provide for subsequent shrinking. The flap should be made somewhat larger than the area to be covered as it is marked out on the surface from which the skin is to be removed, as the arm, so that if we make an allowance of one-third of the diameter of the denuded area it will shrink so that it will just about cover the area. The flap is removed, taking with it as little subcutaneous tissue as possible, and this tissue, if it has been raised with the flap, should be removed as well as possible before the flap is put in position. It was my practice years ago to simply undermine the edges of the denuded area to some extent and to crowd the edges of the flap into the little groove thus formed and permit it to lie in position without the application of sutures; but later I have employed fine sutures to attach the flap to the margin of the denuded area, and also one or two sutures passed through the center of the flap. It has been my custom to cover the flap either with gold-beater's skin or with rubber tissue, the surface of which has been smeared with sterile petrolatum, or petrolatum to which some bichlorid has been added in the strength of 1 to 5,000, to apply a dry dressing and permit the eye to remain bandaged three to five days before disturbing it, according to the symptoms. The place from which the flap should be obtained is the inner surface of the arm, or from the inner surface of the thigh. There is no necessity for hurried removal of the flap, although one should be as expeditious as is consistent with good technic. Perforation of the flap is not harmful.

Dr. F. B. Tiffany, Kansas City, Mo.—I wish to emphasize the importance, as Dr. Weeks has said, of freeing the flap from the connective tissue below. There will not be nearly as much shrinking if this is done.

Dr. William Zentmayer, Philadelphia.—My experience with the Wolffe graft has not been very satisfactory on account of the amount of contraction that occurs with the lapse of time. A year ago I operated for a cicatricial contraction of the lower lid, and when I exhibited the patient at the Clinical Society at Wills Hospital the result was as nearly perfect as it could be. That flap from that day on has dwindled and dwindled until today the result is very little better than it was originally. Dr. Hart once showed a patient at the American Ophthalmological Society one year, and then again a year later to show that the flap had disappeared. There wasn't a trace of it remaining. I am sorry to say my experience has been the same with small flaps.

Dr. W. E. Lambert, New York.—I have had the opportunity of doing a number of these cases. Dr. Zentmayer has emphasized the importance of taking away the subcutaneous areolar tissue, which takes away the tendency to shrink. A large flap is important. I would emphasize the importance of using the sutures. I had a similar case in which this operation was made for the cure of an ectropion, and the picture of the case here reminds me of that. Proceeding as Dr. Calhoun has described, the result was satisfactory.

Dr. F. Phinzy Calhoun, Atlanta, Ga.—The longest I have had a case under observation is six years, and every year it seems the patient improves. There is no contraction such as Dr. Zentmayer describes in his case. I do not know why that takes place except that the areolar tissue is left and makes the contraction more marked. This paper deals with twenty-five cases, and since writing it I have had three others. In the first of the series of three by accident the graft fitted the denuded surface exactly. I noticed that the healing was quicker than when the grafts were larger than the area, but I do not know that this is advisable, because the contraction in instances in which the flap fits exactly would be more marked. The second case of this series of three was a man who was burned about six months ago. Three months after the burn I operated, and that really is the only case in which I have had a failure, in which there has been marked contraction of the flap following the operation. I did not wait long enough. If I had waited six months longer, or a year, or two or three, the result would have been better. I only operate on one lid at a time, because in these cases it is necessary to undermine the lid to pull it down and it more than covers the eyeball, and if you operate on both lids at one time one lid would overlap the other, which would be objectionable. I always apply a dry dressing first to absorb as much of the moisture, tears and blood as possible. After the first dressing petrolatum is an ideal dressing.

Changes Occurring in the Refraction of Corrected Ametropic Eyes.

W. Zentmayer, Philadelphia, remarks on the neglect of the subject of changes occurring in corrected eyes in most text-books and says that Duane is the only author whose writings contain extended reference to the subject of changes of astigmatism after middle life. He gives an analysis of the changes of refraction

occurring in 550 eyes and sums up his findings as follows: "1. Ametropia tends to change in degree even when the error is carefully and repeatedly corrected and the glasses are worn constantly. 2. Almost every conceivable change may occur. 3. The tendency is in the direction of an increase in the static refraction with an increase in the astigmatism. 4. In compound hyperopic astigmatism the most frequent change is a decrease of the hyperopia with an increase in the astigmatism. 5. In compound myopic astigmatism the most frequent change is an increase in the myopia with an increase in the astigmatism. 6. There is no greater tendency for compound myopic astigmatism to change than there is for compound hyperopic astigmatism to change. 7. Simple myopia (rare) is never a stable condition; it almost invariably increases in amount. 8. Simple myopic astigmatism is the least, and simple hyperopic astigmatism the next least stable of astigmatic errors. 9. Simple hyperopia sometimes remains constant, but is subject to undergo both an increase and a decrease. 10. In compound astigmatism the static refraction may change without a change taking place in the astigmatism and *vice versa*. 11. In mixed astigmatism, the myopic meridian most frequently changes and shows an increase, although an increase of the hyperopic meridian with a decrease in the myopic meridian in the same eye, probably occurs with the most frequency. 12. Astigmatism is often acquired in hyperopic eyes, and as frequently in the third as in the fifth decade. Before the forty-fifth year the axis of the acquired astigmatism is as frequently with as against the rule, but after the forty-fifth year it is against the rule in 85 per cent of patients. 13. The total astigmatism may be lost, probably in any decade, but more commonly in the later decades and at this time probably represents a transitional stage to an astigmatism against the rule. 14. A change in the axis of astigmatism occurs in about 50 per cent of the cases. 15. The changes in the refraction occur with most frequency in the period of from 20 to 45 years. 16. After the forty-fifth year changes in the amount of hyperopia in compound hyperopic astigmatism occur much more frequently than do similar changes in compound myopic astigmatism. 17. There is no greater tendency toward an increase in hyperopia between the fifty-fifth and sixty-fifth years than between the forty-fifth and fifty-fifth years."

DISCUSSION. Dr. W. E. Lambert, New York.—The analysis of the cases which Dr. Zentmayer has made, with the results, means a great deal of labor, and brings to us some very useful information. My understanding is that the decrease in the hyperopia in young people is a natural condition following the development of the eye, and of course we all agree that in most cases myopia, especially from 12 to 20 is liable to increase, and we must take precautions. My impression is that the astigmatism is very stable. I find it remaining practically the same. The manifestation of astigmatism late in life is compatible with that, and may be due to either one of two conditions: the corneal astigmatism may have existed previously and may not have manifested itself, and as the lens loses its elasticity this astigmatism becomes manifest. I am sorry the readings of the ophthalmometer were not included. Astigmatism may be reduced by a chalazion, which will disappear after curing the chalazion. A boy had a perforating ulcer of the cornea with resulting anterior synechia, but the pupil was not much distorted. The advice was to leave it alone. After two or three years he began to develop quite a large amount of astigmatism, which increased, undoubtedly due to contraction of the iris. An irideectomy was performed subsequently and the astigmatism entirely disappeared.

Dr. C. D. Wescott, Chicago.—I wished very much that I might have read the paper before I began doing any refraction work at all. I have failed from my reading to learn some of the things Dr. Zentmayer has pointed out today. I feel confident of the correctness of his views. I have also observed the change of astigmatism from a chalazion or anything pressing on the lid. Dr. Jackson tells us that only 17.2 per cent of hyperopes are astigmatic; I felt confident that that was not according to my experience, and since I came here my assistant has run over 200 cases in my records. In those 200 eyes there were 10 hyperopia, 107 with combined hyperopia and astigmatism; six eyes in which there was pure myopia, and 29 in which there was combined myopia and astigmatism. This shows that my experience is not like that of Dr. Jackson.

Dr. G. C. Savage, Nashville.—There are three classes of patients whom I always tell that they will probably have to have a change of lenses in a longer or shorter time. One class is astigmatic with hyperopia or myopia. The other class is the myopic

patient; for we all know that myopia is a thing that increases in a large percentage of cases. The other class is the presbyopes. If I have a patient whose corneal astigmatism corresponds with the refraction by means of the lens, then I say they will not have to change the astigmatic lens. If there is a slight degree of hyperopia or myopia, I tell them they will not have to change for a long time. In my own case the corneal astigmatism was the same 22 years ago as it is today; but where the corneal astigmatism remains the same, I tell them they will have to increase their astigmatic lenses as the years go by. My explanation of that is this: The plane of the lens should be parallel with the tangent of the cornea at its center. If this is true and there is no astigmatism, then there will be no total astigmatism. If the cornea measures 1 D of astigmatism and there is a want of parallelism between the plane of the lens and the tangent of the cornea, then I know that lens has been tilted so as to produce 1 D of astigmatism, and it is not always going to be tilted that way. There is no agent in the *materia medica* that will untilt that lens. The tilting when I was a boy, in my two eyes, when I had good vision, was enough to produce 2.5 D of lenticular astigmatism. It began to unfold itself as I grew older; then I used 50/100; then 75/100, etc., and now, and fifteen years ago, full corneal astigmatism was shown in the lens. Bowman's muscle consists of radiating fibers which are under the control of the superior cervical sympathetic—and we do not know of any agent that will control the fibers that come to that eye, and as we grow older the muscle becomes tired and the lens untilts. The lens as we grow older has something to do with the increase in refraction. We know that the elasticity goes after a while and we have to have the presbyopic lens to correct the presbyopia.

Dr. F. T. Rogers, Providence.—Twenty years ago I had a combined myopic astigmatism; axis in the right eye 15° , and in the left 175° , with $\frac{1}{2}$ D myopia and $1\frac{3}{4}$ D astigmatism. At that time I had 2 degrees of right hyperphoria. In twenty years the axis of the right eye has shifted from 15 degrees to 170 and in the left from 175 to 5. At the time when the axes were practically at 80 the hyperphoria was practically 0. It is now $\frac{3}{4}$ to 1. I don't know what change has occurred, but I can bear out Dr. Zentmayer that there is change in the amount of astigmatism and in the axes.

Dr. Mark D. Stevenson, Akron, O.—This work of Dr. Zentmayer's is not an attempt at an explanation, but an analysis of the changes found in the cases, and this is particularly of advantage. Since in Philadelphia they use atropin we can practically eliminate the action of the ciliary muscle or anything but the real astigmatism. I have now also come to the atropin standard in younger people. From my own experience there are many more younger people with the rule, but older people generally correspond with Dr. Zentmayer's figures against the rule. I may not be quoting these statistics correctly.

Dr. Hiram Woods, Baltimore.—The general statements of Dr. Zentmayer's paper are undoubtedly correct. We do get changes in the axes of astigmatism. Dr. Risley some years ago insisted that we have cycloplegia before we drew conclusions as to what the static refraction was; the mere use of atropin or other drug with dilated pupil and inability to read, is not cycloplegia necessarily, and when you contrast one result with another you want to know that you have complete cycloplegia, and especially with reference to myopic astigmatism. A child had a myopia of 1 D. I had not seen it for two years, when the patient came in with an apparent increase of the myopia to 3 D. Atropin was used the first day, and the myopia fell to about one-half or three-fourths, and kept steadily decreasing for three or four days, and at the end of a week it was only about 50 per cent of the apparent increase on the first day. I would not have had any way of knowing that except by the prolonged use of the cycloplegic. In young people the first day or two the cycloplegic does not always give us complete relaxation.

Dr. A. E. Bulson, Jr., Ft. Wayne.—Some men when they speak of a mydriatic mean a cycloplegic. It should be remembered that there is a great difference between a cycloplegic and a mydriatic. A cycloplegic is always a mydriatic but a mydriatic is not always a cycloplegic. I am a firm believer in the use of a cycloplegic that thoroughly paralyzes the accommodation. I have noticed a change in the refraction of patients examined under homatropine three or four years previously, and under the impression that the cycloplegia was complete I concluded that the change in the refraction was due to changes in the shape of the eye itself or in the shape of the lens. Later when hyoscine or atropine was used with still different results, I became con-

vinced that the changes noted were not always due to changes in the shape of the eye or the lens, but rather to failure in previous instances to secure complete cycloplegia.

The practical point of this paper is the demonstration of the fact that there is a change in the eye itself, and that the change cannot be attributed to faulty cycloplegia. We are not warranted in supposing that patients refracted by others have been refracted improperly because we obtain different results several years later.

Dr. William Zentmayer, Philadelphia.—Most of the discussion that has taken place has been based on just what led me to analyze my cases, just from preconceived ideas, without any statistical results to base them on. My own case is one in which I was refracted under atropin twenty-five years ago and had $\frac{1}{2}$ diopter of hyperopia and $\frac{1}{2}$ diopter of astigmatism. I am now using an axis of 95 in one eye and 100 in the other. To show how uncertain after all any prognosis in regard to refractive changes must be, day before I left Philadelphia I saw a patient whom I had refracted twenty years ago who had a low hyperopic astigmatism in one eye, and a low myopic astigmatism in the other eye. She came back at the end of twenty years for presbyopia. I went over the eyes, and she is now wearing the same glasses she wore 20 years ago. In regard to the theory of these changes, I left that alone; I simply wanted to present a statistical paper. It is as Dr. Woods says; we have no very definite way of knowing whether we have absolute cycloplegia; but I use 1 per cent solution of atropin and instil 2 drops into each eye two days before the test and test my patients three times unless the first two tests concur. That is practically five days of atropin cycloplegia. In regard to the use of the ophthalmometer, it was first done before the instrument was used and I could not make a complete study in that way.

Dr. Savage.—When was your cornea first measured with the ophthalmometer?

Dr. Zentmayer.—Twenty-five years ago.

Dr. Savage.—Did it differ much from what it is now in the corneal astigmatism?

Dr. Zentmayer.—It has apparently changed in my case.

Refraction Changes in Diabetes.

C. D. Wescott and J. B. Ellis, Chicago, call attention to the

fact that refraction may not only be increased in diabetes, but that it may also be diminished; that both changes may occur in the same patient, and that the changes bear no necessary relation to the amount of sugar in the urine. It is well known that diabetes sometimes causes a true paralysis of accommodation and a number of cases have been reported of increased myopia or diminished hyperopia in glycosuria by various authors. Westcott and others have collected from the literature and reproduce in abstract a number of cases which they consider afford trustworthy evidence of diminished refraction due to diabetes. The former reports a personal observation, and Ellis reports two of the same character. In Wescott's case, the hyperopia decreased, increased, and decreased again with a parallel steady increase in the amount of sugar in the urine. Numerous theories have been proposed in explanation of refraction changes during diabetes, generally assuming that the presence of sugar in the lymphatic circulation of the eye causes alteration in the refractive indices of the media; or else that the volume of the globe is altered by the loss of fluid in diabetes. In some diabetic cataracts the lens has been found to contain sugar. In others it was not found. Against the idea of alteration in the refractive index of the aqueous caused by the presence of sugar it is necessary to produce a myopia of 1 D., while Deutschmann noted cloudiness and swelling of the lens after immersing it in a 5 per cent sugar solution for a few hours. Obviously these two experiments are inconsistent with the idea that a considerable change in refraction without cataract formation is due to the presence of sugar in the fluid bathing the lens. Schmidt-Rimpler says that loss of fluid with minus tension does not alter the refraction of an eye and in Lundgaard's third case, here reproduced in abstract, which the authors call the most thoroughly studied of all the cases found in the literature, repeated examinations with the ophthalmometer and tonometer revealed no alterations in corneal curvature or tension of the eyes during the period of varying refraction. None of the theories seem satisfactory to Wescott and Ellis but they think the problem may some day be solved. It offers opportunity, they say, for the internist, the physicist, and the physiologic chemist as well as the ophthalmologist.

Dr. William Zentmayer, Philadelphia.—Dr. Wescott's analysis of cases is particularly interesting. As a rule all of them

present changes in refraction, especially those that have a decrease in the static refraction. The cause is difficult to explain. We do know that we have paralysis of accommodation, cataract and myopia as the result of diabetes. Now as far as the accommodation theory, Dr. Roberts' case certainly indicates that a paresis of accommodation may be the cause of the decrease in the static refraction, but there are many cases on record in which the static refraction was known before the change took place, particularly in Dr. Risley's case, and Dr. Carpenter's case and Dr. Lundgaard's case—the refraction was known and was again estimated under atropin, and after the atropin had passed off and it was known that it was due to the actual change in the static refraction. In my own case I am sure I do not know what the static refraction was before, but during the time there was no change in the accommodation. Recently the patient has had a second attack and again there was no paresis of accommodation present. Paralysis of accommodation in other affections are not so fugacious; they are not so intermittent, as these changes which occur in diabetes. Then again, there is no other way of explaining the change in the myopia—the increase—except in the swelling of the lens. I think it is fair to infer that the change, as curious as it is, must be a lenticular one. Vonderhoff and Grimsdale have attempted to explain it, and Dr. Randall in discussing the paper of Dr. Gould said that the eye of the infant was almost spherical and almost homogeneous, but that did not make it too refractive for the small eye. If you think an increase has taken place in the index of refraction of the cortical layers of the lens you have a change in the entire lens, and such a lens, of course, is less refracting than a lens which has a different index of refraction in its various layers. It seems to me that is a possible explanation of these cases.

Dr. C. D. Wescott, Chicago.—And as Dr. Roberts is not able to be here, and was expecting to say something with reference to his own case, I should like to call attention to one or two points, and I shall read my excerpt of his case: Roberts'* Case.—Roberts reported the following case under the title of "Transient Cycloplegia Due to Glycosuria": A man, aged 51, the subject of diabetes, complained of inability to read with his old reading lenses and inability to see distant objects distinctly without lenses. Heretofore he had seen distinctly, without lenses for dis-

*Roberts: Arch. Ophth., 1909, xxxviii, No. 4.

tance, and with +1.75 Sph., both eyes, for near. The sugar in the urine was now 3/8 per cent, whereas two weeks before it had been 7 per cent. R. E. V.=6/22.5; L. E. V.=6/15. Manifest refraction was: R. E. +1.75 Sph. V.=6/5; L. E. +1.75 Sph. V.=6/5. The addition of +2.25 Sph., both eyes, was necessary to bring the near point to 13 inches. No lesion was discovered in either eye. One month later his general health was improved. His last glasses had been satisfactory until within a few days; but now they blurred his distant vision, and required that he hold his book too close to the eyes. Vision, with correction, was 6/12. Manifest refraction showed: R. E. +1.00 Sph. V.=6/5; L. E. +0.75 Sph. V.=6/5; with +2.25 Sph. added for near. Nine months later he reported that his eyes had gradually returned to their previous condition and he used his original lenses for reading (+1.75). It would seem to us that this is really a case of increase of hyperopia in the course of diabetes, with a very small amount of paresis of accommodation; for the patient required +1.75 Sph. for presbyopia before his diabetes, and only +2.25 Sph. added to his distance correction when first seen by Dr. Roberts; and when seen later his presbyopia remained the same, while his hyperopia had diminished 0.75 D. in the right eye and 1.00 D. in the left; later still both the hyperopia and the slight paresis of accommodation disappeared practically, allowing the use of the original reading lenses only (+1.75).

It will be seen that after the patient's health improved he asked for his former glasses for reading. I venture to say that if Dr. Roberts had studied his case under complete cycloplegia he would have no doubt in his mind as to my view of the case.

The Psychological Aspect at Refraction.

S. L. Ledbetter, Birmingham, Ala., discusses the psychologic aspects of refraction. If all persons were just alike in their brain quality and habits of thought refraction would be reduced, in a measure, to a simple question of accurate observation and correct measurements. Such, however, is not the case. The individual has to be considered with all his eccentricities and idiosyncracies. The fitting of glasses to presbyopes in the large proportion of cases calls for no great skill, but does require a reasonable amount of common sense and knowledge of human nature. Most people of this class are not hard to please and will get along with very inferior fitting, and thus fall readily into the hands of

unscrupulous spectacle venders. There are some, however, who are skeptical and fault finding and hard to suit, and the patient of this class is apt to give the physician more or less trouble. With patients of this class there is a fertile field for the judicious use of psychologic influence. There are some specially troublesome individuals who imagine glasses would be an advantage to them, even if they do not really need them, and these may diagnose their own cases and deceive the examiner, sometimes unintentionally. While Ledbetter does not approve of suggestive therapeutics or hypnotism as practiced by the ill-advised or the charlatan, he believes that much can be done with persons of this type by mental suggestion. They readily fall into the hands of the unscrupulous, and the skilled refractionist who is lacking in the power to inspire confidence will have difficulty in leading the patient along lines of least resistance to correct conclusions. Sometimes it is even advisable to give these patients glasses when they do not need them, and even an honorable practitioner may do good in this way if the interest of his patient is subserved. An unscrupulous individual, however, can do a great deal for his own profit and the loss of the patient, and this is the secret of much of the success of the traveling optometrist's quackery, of which Ledbetter narrates some examples. Of course, the public finds itself imposed on in the end, but in the meantime it suffers, and the condition seems to be almost irremediable, as any effort to protect the people by legislation or instruction is looked on as inspired by jealousy.

DISCUSSION. Dr. C. G. Savage, Nashville.—We will need no psychology if the patient has only one eye and there is no inflammatory trouble in that eye. To make a proper psychologic impression on the patient a thorough examination should be made, not only as to the refractive error, but as to the general medical condition. When you get a patient with a hyperphoria, if only of $\frac{1}{2}$ degree, he is going to complain. If you tell them that they have it and that you are going to correct it the effect follows, not only from the psychologic condition, but from the prismatic condition of the lens. Many times I have gone over cases of refraction that had been to my confreres and found absolutely no necessity for a change of lens, but a necessity for knowing how to handle the patient. In giving a prism for a hyperphoric eye there is always relief that should come. If there

is an exophoria in the near and your patient has a hyperopia and you attempt to give full correction without paying attention to the exophoric condition in the near, then you are going to get into trouble. If there is esophoria in the case and there is hyperopia and you fail to give full correction then you are going to have trouble. Ciliary derangements always give trouble. If a patient with spasm wears a prism that makes the lines of a rectangle look broader at the bottom he will feel that he is walking up hill. But the patient can be told that beforehand. But suppose the patient's spectacles make the lines converge above; the lenses are going to make the patient walk down hill and the rectangle will be broader at the top, and that is going to last four to ten times longer than the other trouble. If you are able to tell the patient this you make a psychological impression, and he becomes accustomed to them more rapidly. One fact should make a good psychological impression on him, and that is that a straight line should pass through the four joints of the spectacle frame. It does not make much difference if there is hyperopia, but it makes a world of difference if there is astigmatism. Whenever a glass leans this way or that way it is going to bring trouble, and many times patients walk into my office with their glasses all awry. I straighten them up and often they meet me and tell me that they never had so much good done them as the little instruction I gave them on this point.

Dr. William F. Mittendorf, New York.—Listening to Dr. Savage and finding him delighted when he has only one eye to look after, I have thought of our English colleagues, who are really to be envied, because they generally have only one eye to deal with. They give the patient a monoele, and he is happy. However, the psychological effect on our patients is only accomplished, as Dr. Savage has said, when we make a thorough examination, although we feel confident from the very first word that the patient says that there is little or nothing the matter with his eye. Yet if we tell him so before examining his eyes thoroughly he will go away with doubts in his mind. If we examine him and tell him he need not worry then he is satisfied.

Dr. C. D. Wescott, Chicago.—It seems to me from my experience that the decade in which we should be most careful is between 45 and 55. It is certainly the time of life when I use cycloplegia with the greatest care and in which I make the great-

est effort to correct small, low grades of astigmatism. I have one patient, a physician in Chicago, 66 years old, who will not accept a cylinder unless the eye is under the influence of a cycloplegic. Under cocain and homatropin he accepts a diopter and is more comfortable both in reading and for distance, which he will not take in the old fashioned way. So it has been my practice for years to use atropin, in the absence of any contraindication, in all patients under 40; in patients over that age I use homatropin and cocain 2 per cent each, a half dozen drops in each eye, then waiting an hour. I use it up to 70. Frequently I do not use the full dosage, but I use it in practically all patients in whom there is no contraindication. I examine them as to the tension and as to the condition of the eye-ground before the mydriatic is given, and I have been astonished at the relief I have given old patients under this cycloplegia.

Mark D. Stevenson, Akron, O.—I think one of the most important things, as Dr. Savage has said, is to outline to the patient the difficulties in becoming accustomed to the glasses and their proper use. I think one of the greatest reasons for using atropin instead of homatropin under 45 or 40 years of age is that it assists the patient in quickly becoming accustomed to the glasses; not merely for finding the real static refraction, but it gives the patient a rest, and if you insist on the continuous use of the lens they become quickly accustomed to it. In addition to this a thorough explanation is made of how to wear the lenses and how they will see themselves walking up and down hill and that it will correct itself. If this is not explained to your patients you will lose control of them. They have something they do not understand. I think if we can foresee all these difficulties and explain to them that this is always so in a patient correctly fitted, that they must expect that, it is of the very greatest importance from the psychologic standpoint.

Dr. Edgar S. Thomson, New York.—I think it is very important indeed to prepare the patients for just what they are going to experience. In the first place the action of the eyes is a matter of the co-ordination of a number of different muscles and delicate acts of co-ordination must always be subconscious in order to be perfectly easy. There is a very decided analogy, to my mind, in becoming accustomed to new conditions in co-ordination of the eyes to learning a new passage on a musical instru-

ment, say the piano. It must be carefully drilled into the memory first of all and then it must be played without thinking of the individual action of the fingers; in other words, the co-ordination must be in the subconscious mind. Now if patients get a lot of unexpected symptoms when they first put on the glasses that disturb them they immediately begin to try to pull around them, and try to adjust themselves to them, which is just what they should not do. Therefore it is important in any change of refractive conditions to have them prepared so that they will drift with the tide instead of fighting it.

Dr. W. E. Lambert, New York.—We presume of course that any man who attempts to fit glasses knows his business and makes a thorough examination, and the subjective tests may show up somewhat differently, and he has got to use his common sense in dealing with the different patients. This applies to fitting glasses, giving medicine and anything else, and to my mind that is what the doctor tried to bring out. He says it is a fascinating subject. I have not found it so. Refraction is a tiresome and tedious thing. It reminds me that we must at times be all things to all men. It is quite legitimate to be a fakir if we do it for the benefit of the patient.

Dr. S. L. Ledbetter, Birmingham, Ala.—There are a lot of things that might have been said in closing but I do not propose to burden you with a long discussion of these points. We can think them out for ourselves.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MAY 15, 1911.

THE PRESIDENT, DR. H. W. WOODRUFF, PRESIDING.

The Surgical Removal of Corneal Scars.

Dr. Meyer Wiener, of St. Louis, (by invitation) delivered an address on this subject illustrated with lantern slides. He said that a means for the successful removal of corneal opacities has stubbornly resisted the most persistent efforts of scientific ophthalmology. This, in spite of its tremendous significance from a visual, cosmetic, as well as an economic standpoint.

There is no mention in the text books of the surgical removal of scars. A method has been employed by the author which has been successfully tried on various animals and man, which promises much for the future. This consists of making

an incision perpendicular to the surface of the cornea along the line of the scar; then cutting from the middle of this line through the scar to be removed. The cornea is then picked up carefully with a sharp hook and dissected away until it can be more firmly grasped with a forceps, it being urged to keep in the same sheath in which we start. It is difficult to gauge the first incision so as to go deep enough and yet not puncture the Descemet's membrane. But this skill is acquired with practice.

The after-care is just as one would treat any corneal wound; the less interference the better. Cleanliness is of paramount importance.

The microscopical specimens showed that the epithelium covers the resected area in from five to seven days. It eventually assumes its normal thickness and appearance. The cornea proper becomes gradually clearer and thicker, although never attaining the normal thickness.

Age seems to have little influence on the result, as in one patient on whom the author operated two years ago at the age of 69 years, the vision was improved from hand movements to ability to count fingers at ten feet, with improvement still continuing.

The photographs presented showed the appearance of rabbits with white scars from cauterization, and pictures taken later after the scar had been resected.

The point especially made prominent was that the operator must keep in the same layer of the cornea in which one starts by virtually peeling it away. The operation is not advised in active corneal infiltrations, but only in persistent corneal scars.

It is a delicate and difficult procedure which only the skilled surgeon should attempt. In selected cases, visual and cosmetic results are obtained which no other methods within our present knowledge can supply.

DISCUSSION. Dr. Thomas Smith believed that the surgical procedure advocated by Dr. Wiener might change the thickness of the cornea to such a degree that a very annoying irregular astigmatism might possibly result. He felt also that the procedure could hardly commend itself at the present time to ophthalmic surgeons. The work done, however, by Dr. Wiener was a valuable contribution to the subject, and he hoped that from it would come results of permanent value.

Dr. Richard J. Tivnen agreed with Dr. Faith's view that an annoying irregular astigmatism of the cornea from Dr. Wiener's procedure might be expected. The operation as described by Dr. Wiener impressed itself as being very technical and one not to be recommended to the average surgeon. The dissection of the opacity without puncturing or injuring Descemet's membrane would seem to him to be exceedingly difficult. Dr. Wiener's observation that the substantia propria regenerates without the formation of scar tissue is a new pathological observation. The method of Dr. Wiener is certainly a distinct step in advance and deserves a thorough trial.

Two Additional Cases of Iritis Treated With Salvarsan.

Dr. Willis O. Nance reported two additional cases of acute iritis which had been treated with 606. The results following the use of Ehrlich preparation were prompt and positive. In one instance the deep and intense ciliary injection had entirely cleared 48 hours following the injection. In the other, an unusually virulent type with iritic gumma, the patient was practically well so far as appearance indicated, three days after injection. One case was doubly interesting in that the eye that was treated according to the classical mercury and iodid method last fall required 4 weeks to clear up and at the present time there are positive and pronounced evidences of permanent posterior synechial, in contrast to the rapidity with which the symptoms disappeared in the salvarsan-treated eye and the entire absence of any sequelae.

If further and elaborate clinical experience demonstrates that 606 can be depended upon to produce results in from 2 to 4 days as it has in the present cases, or even in 2 or 3 times this length of time, it appeared to Dr. Nance that its use would be a marked advance in ocular therapeutics in not only saving the patient days or weeks of suffering and inconvenience, but in preventing the occurrence of permanent and at times serious sequelae, as posterior synechiae and choroidal involvement.

DISCUSSION. Dr. W. H. Wilder had recently observed a case of syphilitic tarsitis of the upper lid in a young married woman that yielded very promptly to the effect of salvarsan. The lid was much thickened so that it completely covered the eye and seemed to threaten to break down. In addition to the lesion of the lid, there was a large circinate syphilide on the

back of the neck extending down onto the right shoulder with raised borders ulcerated in places. The Wasserman test gave a distinctly positive reaction. After one injection of salvarsan, the lesion of the lid disappeared with remarkable rapidity, as did also the lesion on the back of the neck, so that in two weeks the patient was practically well, and the right upper lid showed only a slight thickening.

Diplo-Bacillary Infections of the Eye.

Dr. Harry S. Gradle gave a short review of the work on the vitality of the Morax-Axenfeld diplo-bacillus in experimental work, together with some of his own results. All the work tends to show that the action of zinc sulphate in varying concentration does not actually kill the organisms, although the clinical results from the use of that drug are satisfactory. Silver nitrate in one-tenth per cent solution accomplishes the result more rapidly.

Anti-bodies against the diplo-bacillus are not produced by the human organism, but are found extensively in the lower animals and increase in them in large amounts by active immunization. This fact is employed in the serum treatment of the chronic conjunctivitis and ulcers caused by the diplo-bacillus. The serum of a rabbit immunized against the organism, is applied locally in the conjunctival sac twice daily for a period of several weeks with very beneficial results. The author cited several cases that had responded well to this form of treatment. The serum therapy is not meant to replace zinc sulphate in those cases that respond to that drug as a specific, but in the few cases that fail to respond at all.

Scleral Cyst.

Dr. H. W. Woodruff presented a case of cyst of the sclera which had followed an operation for pterygium. The operation was that of McReynolds.

Dr. Oliver Tydings believed that while the history of the case would point to the growth being one of cystic nature, yet the appearance would indicate that it was of a solid nature.

Dr. Clark W. Hawley had met with a case similar to that shown by Dr. Woodruff. The patient was a physician operated on at the Post Graduate Hospital. The growth was about one-half as large as the one shown. It disappeared without treatment.

WILLIS O. NANCE,
Secretary.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

BY SYDNEY STEPHENSON, F. R. C. S.

Honorary Secretary of the Congress.

The 1911 meeting of the Oxford Ophthalmological Congress, which assembled at Keble College, Oxford, on July 13th and 14th, last, was notable for several things, one of the most important of which was the number of members who attended from the other side of the Atlantic. The weather was ideal, and leafy Oxford was looking her best.

The business session of the congress was opened on the morning of July 13th by an address of welcome from the Master, Mr. R. W. Doyne, Margaret Ogilvie Reader in Ophthalmology in the University of Oxford. In a few well chosen words, he welcomed members, and in doing so, insisted upon the necessity of members coming prepared to do something more than to enjoy the social amenities of the ancient university city. Exhibits by members were desired and welcomed. Mr. Doyne was followed by Professor Arthur Thomson, who delivered an address, illustrated by beautiful lantern slides, on the filtration angle, its anatomy and function, which will be found in the *Ophthalmoscope* of July 1st, last. Everybody present (and they were many in number) felt that Professor Thomson had made a weighty contribution to the elucidation of some of the problems connected with glaucoma. Dr. Lieven of Aachen next gave an address dealing with "Salvarsan, Its Value, Its Uses and Its Method of Employment." The last address of the morning was by Major R. H. Elliot, of the Government Ophthalmic Hospital at Madras, who chose as his subject his operation of trephining the sclera for the relief of glaucoma. He described his latest *technique*, and analyzed the condition of the patients, 66 in number, who had returned for observation after performance of the operation. The address will be found in the *Ophthalmoscope* of August 1st, last.

On the following day (July 14th) Professor Francis Gotch, F. R. S., delivered a most scientific address on dark adaptation. Dr. St. Clair Thomson then gave a lantern demonstration, showing the relationship of diseases of the nose and accessory sinuses to affections of the eye and orbit. He brought together a most instructive collection of slides, and was eagerly listened to by a crowded audience. Dr. Harold Low next discussed the

use of narcotic drugs, such as scopolamine, morphine and atropine, as adjuvants to general anesthesia.

In the University Department of Physiology several interesting and novel exhibits were on view, among which may be mentioned Dr. Edridge-Green's experiments on the discrimination of color, Dr. Thomson Henderson's points in the mechanism and comparative anatomy of accommodation, Mr. P. H. Adams' experiences of the effect of accommodation on the intra-ocular tension, methods of demonstrating the general blood-pressure by Dr. A. G. Gibson and Mr. H. G. Armstrong. A new tonometer by the author of the present report attracted some little attention, inasmuch as it was simple and constructed upon a new principle. In addition to this, the "small flap" operation for glaucoma was demonstrated upon animals' eyes by Mr. H. Herbert; the trephining operation for glaucoma by Major R. H. Elliot; and some points in the intra-capsular extraction of cataract by Major G. H. Fink.

An exhibition of optical appliances, surgical instruments, microscopes, microtomes, drugs, etc., had been arranged, and many firms of repute showed their products.

The afternoons of both the 13th and 14th of July were devoted to witnessing operations by Mr. Charles Higgens, of London, and Dr. S. Lewis Ziegler, of Philadelphia. These were performed at the Oxford Eye Hospital, which lies but a short walk from Keble College, the headquarters of the congress. An opportunity was also taken of inspecting the interesting series of cases brought together by the honorary staff of the institution.

Now a word as to the social side, always a strong feature of these meetings. Most of the members were lodged and boarded at Keble College, lent for the purpose by the permission of the warden, at a ridiculously small sum *per diem*. They were lodged in the undergraduates' rooms, and took their meals together in the College Hall. It was all very simple and charming, although one could some times wish that the beds in this most modern of Oxford Colleges (it was founded as recently as 1869) were not quite so reminiscent of a monk's cell. The discipline that consorts well with twenty years of age seems a little severe for those who have attained, alas! more mature years. The official dinner of the congress, presided over by Professor Sir William Osler, Bart, F. R. S., was held on July 13th in

Keble Hall, and the chief guests were the vice-chancellor of the University of Oxford and Prof. W. Lock, D. D., Warden of Keble College. Dr. Wendell Reber (a member of Council) responded to the toast of the congress, and other American voices included those of Dr. Ziegler and Dr. Snyder. On the same day there was a well-attended garden party at Balliol College, kindly lent for the purpose by the Master and Fellows. Mrs. Reginald Poole made an ideal hostess. Arrangements were made to visit the more interesting colleges in small parties, each under the charge of a lady well versed in the lore of those venerable buildings. An inspection of the world-famous Clarendon Press was also arranged. That does not complete the tale, for on the evening of July 14th a delightful smoking concert was held in the junior common room at Keble College. American tales were much to the fore!

BOOK NOTICES.

OPHTHALMIC MYOLOGY, a systematic treatise on the muscles, by C. G. Savage, M. D., Professor of Ophthalmology (Defects of the Eye) in the Medical Department of Vanderbilt University. Author of "New Truths in Ophthalmology," and "Ophthalmic Neuro-Myology," Ex-President of the Nashville Academy of Medicine, Ex-President of Tennessee State Medical Association, Ex-President of the Southern Medical Association. Eighty-four illustrative cuts and six plates. Second edition. Published by the author, 137 Eighth Avenue, North, Nashville, Tenn.

MANUAL OF THE DISEASES OF THE EYE, for students and general practitioners, by Charles H. May, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, 1890-1903, etc. Seventh edition, revised. With 362 original illustrations, including 22 plates, with 62 colored figures. New York, William Wood and Company, 1911. Price, \$2.00.

ATLAS OF THE EMBRYOLOGY OF THE HUMAN EYE. (Atlas zur Entwicklungsgeschichte des Menschlichen Auges.) By Prof. Ludwig Bach, of Marburg, and Privatdozent R. Seefelder, of Leipzig. There are Twenty-four Illustrations in the Text and fifteen Plates. Price unbound M. 20. Published in Leipzig. By Wilhelm Egehuann, 1911.

CORRESPONDENCE.

Intraocular Neoplasms.

August 30, 1911.

To the Editors of THE OPHTHALMIC RECORD.

Gentlemen: On page 432 of the August issue of The Record, in which you report the proceedings of the Eye Section of the American Medical Association recently held in Los Angeles, I find in looking over the discussion of the paper of Dr. F. Park Lewis of Buffalo, New York, On Intraocular Neoplasms, that he kindly referred to a reprint of a paper which I had the honor to present at the Denver meeting of the Section in June, 1898, on Glioma of the Retina, in which I reported seventeen cases, five of which occurred in one family. Some errors in dates have slipped in, which are confusing, and if not corrected will necessarily prevent one from finding the first case, which appears in 1874 in Dr. Knapp's Archives of Ophthalmology, Vol. IV, page 7, in which the clinical history is by myself and the anatomical by Dr. H. Knapp, in which he found the growth originated in the inner granular layer of the retina. The OPHTHALMIC RECORD states that the history was published in said Archives in 1894. It should be 1874.*

Allow me again to call attention to this remarkable history of heredity, and also to give a copy of the mother's letter in answer to my request for data concerning the deaths of four other children in addition to the one whose eye I enucleated and which I sent to Dr. Knapp for the microscopic examination. The mother's letter is as follows:

Dr. J. L. Thompson,

Indianapolis, Ind.

Dear Sir:

At your request I will try to give you the desired information. First child affected with cancer of the eye was a boy, born Sept. 9, 1869. Disease noticed when born. No medical attendant. Died August 27, 1871. Second child, girl, born August 23, 1872. Disease noticed in right eye June, 1873. The eye was removed by yourself Sept. 2, 1873. Cancer came in the other eye about seven months later and she died August 11, 1875. Third child, boy, born October 29, 1880. Cancer dis-

*[These dates were published as they appeared in the report furnished by the stenographer.—Editor.]

covered in the eye at the age of three months. Died January 24, 1882. Fourth child, girl, born Sept. 8, 1883. Disease noticed in right eye, in February, 1885. Died March 5, 1887. Fifth child, girl, born Sept. 29, 1888. Disease noticed in right eye February, 1890. Died July 5, 1891. I am fifty-five years old, the mother of fourteen children—seven boys and seven girls. I have always had good health. I have lost no other children but the five who died of the cancer of the eyes. I did not know my husband's people, but an old lady who did, told me that a great-aunt died of cancer of the breast, and that she had three children who died of cancer of the eye. My last three children's eyes did not get so large as the first two, but they suffered with their stomachs. It was impossible to get any food to stay on their stomachs.

Yours truly,

J. L. THOMPSON, Indianapolis.

Prof. Dr. Ernest Fuchs, professor of ophthalmology in the University of Vienna, delivered a series of ten lectures on the eye at Cooper Medical College, San Francisco, from August 21st to 25th. The lectures were given in English and formed part of the Lane Medical Lectures which were founded in 1896 by Dr. Levi Cooper Lane of San Francisco. The subjects were: Operations on the Eye, The Eye in Tabes. Trachoma, Tumors of the Eye, The Eye in Brain Affections, General Symptomatology, Corneal Ulcers, The Anatomical and Functional Development of the Eye from Its Lowest to Its Highest Type Through the Animal Kingdom.

Columbia University is to give a two years' course for optometrists, open to any high school graduate, but with no diploma or degree attached. Such a course open to laymen is a disgrace and open to the same valid objections as any optometry law. As a special course for physicians who wish to specialize it would be a valuable adjunct to the regular eye courses and would result in a better understanding of physiologic optics.

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. Paul Erdman of Rostock recently received the title of Professor.

Prof. Schmidt-Rimpler of Halle, Germany, recently celebrated the fiftieth anniversary of his doctorate.

Dr. L. Webster Fox sailed August 3rd for Europe, where he intends to carry on some research work.

Dr. K. H. Sattler of Königsberg, Germany, has qualified as privat-dozent in ophthalmology in that city.

Dr. Richard Cords has qualified as privat-dozent in ophthalmology, in Bonn, Germany.

Dr. Dastot of Mons, Belgium, formerly a president of the Belgian Ophthalmological Society is dead.

Dr. Leslie Paton was recently made ophthalmic surgeon on the staff of St. Mary's Hospital, London, England.

Dr. F. Park Lewis of Buffalo was recently re-appointed commissioner for the State School for the Blind at Batavia, N. Y.

Dr. John Pratt has been appointed oculist at Aurora, Ill., for the Aurora Division of the Burlington Railway.

Dr. J. E. Minney, oculist to the Rock Island System at Topeka, Kansas, has resigned to remove to Los Angeles, Cal.

George Coats has received the appointment of assistant ophthalmic surgeon to St. Mary's Hospital, London.

Professor V. Michel, director of the Berlin Eye Clinic will be obliged to retire because of ill-health.

Dr. Geo. T. Stevens of New York has been appointed as Ophthalmologist to the Public Relief Bureau of the G. A. R. for New York State.

Dr. Orvid E. Osell, formerly assistant professor of clinical ophthalmology in the University of Kansas, died at his home in Douglas, Arizona, July 25th, aged 43.

Dr. Chas. H. Spears of Champaign, Ill., has been re-appointed ophthalmologist on the staff of the Julia F. Burnham Hospital, Champaign.

The New York Ophthalmic and Aural Institute received \$10,000.00 from the estate of the late George L. Fox of Brooklyn.

Dr. Wendell Reber of Philadelphia sailed for Europe on July 1st, Dr. Lewis Zeigler on July 4th and Dr. Walter Pyle on July 8th.

Dr. James Thorington of Philadelphia has received the appointment as ophthalmologist to the Presbyterian Hospital to succeed the late Chas. A. Oliver.

The Central London Ophthalmic Hospital is to have a new building, the corner stone of which is to be laid by the Duchess of Albany.

Dr. Harry S. Gradle has been elected Professor of Ophthalmology on the Faculty of the Chicago Eye, Ear, Nose and Throat College.

Mr. A. A. Bradburne, F. R. C. S., of Manchester, Southport, England, has succeeded Mr. Claude Worth, F. R. C. S., of Harley street, London, on the staff of *Ophthalmology*.

The Royal London Ophthalmic Hospital has a special department for the refraction of school childrens' eyes. G. T. Mould of London has been appointed assistant in this department.

The second edition of Dr. Savage's work on the eye muscles cannot fail to be of general interest. Many illustrations and

much new material have been added and many parts re-written, tending to clarify the rather involved problems presented. While all may not agree in full with the deductions of Dr. Savage, his wide experience in practical muscle work entitles him to consideration.

Prof. Carlo Reymond of Turin, Italy, is dead. Prof. Reymond was for many years one of the most active of Italian ophthalmologists and was closely in touch with the work of other countries in this specialty.

Dr. Samuel Z. Shope, Harrisburg, Pa., has been put on the staff of *Ophthalmology* as one of the collaborators. Dr. Shope has recently had conferred upon him the degree of Doctor of Science by the Susquehanna University of Pennsylvania.

The following Americans were present at the meeting of the eye section of the British Medical Association at Birmingham, England: Reeve of Toronto, Pischl of San Francisco and McReynolds of Dallas, Texas.

The Oxford Congress was well attended this summer. Among the Americans present were Drs. Wendell Reber, Philadelphia; Derrick T. Vail, Cincinnati; J. O. McReynolds, Dallas, Texas; W. H. Snyder, Toledo, Ohio; C. H. May, New York; Lewis Ziegler, Philadelphia, and J. L. Minor of Memphis, Tenn.

Dr. John Tatham Thompson died recently in Cardiff, England. Dr. Thompson was at one time associated with the late Dr. Argyll Robertson and was ophthalmic surgeon to Cardiff Infirmary for twenty years when he was appointed consulting ophthalmic surgeon. In addition he held many important posts and contributed many valuable papers on ophthalmic subjects, notably miner's nystagmus.

Dr. Blencowe E. Fryer of Kansas City, Mo., died August 13th. Dr. Fryer served as a surgeon in the Civil War and retired with the rank of lieutenant colonel. He was made professor of ophthalmology in Kansas City Medical College and thereafter limited his practice to diseases of the eye. He was a member of the American Ophthalmological Society, American Academy of Ophthalmology and Oto-Laryngology, American Academy of

Medicine and the Association of Military Surgeons of the United States.

Dr. Alvin A. Hubbell of Buffalo, died August 10, aged 65. Dr. Hubbell's death adds one more to the already long list of famous ophthalmologists who have died during the past year.

In his early work Dr. Hubbell was associated with the late Dr. Samuel Gross of Philadelphia, and later he went to Buffalo where he was made professor of ophthalmology in Niagara University. He continued to hold his chair after the consolidation with Buffalo University and this last spring was made emeritus professor of ophthalmology.

The following sketch of Dr. Hubbell was prepared by an intimate friend:

“Dr. Alvin Allace Hubbell, son of Schuyler Phillip and Hepzibah (Farnsworth) Hubbell, was born in Conewango, N. Y., on May 1, 1846. He died at the Lenox hotel, North street, Buffalo, on Thursday, August 10, 1911.

“Dr. Hubbell's grandparents were pioneer settlers of western New York, as were his earlier ancestors of the colony of Connecticut. He was a descendant of Richard Hubbell, who emigrated from England in 1648, and who was one of the first settlers and foremost citizens of Fairfield, Ct. Dr. Hubbell was the eldest of four children.

“He married on June 26, 1872, at Leon, N. Y., Evangeline Fancher, daughter of Captain William and Lydia (Mills) Fancher, and sister of former Senator A. T. Fancher of Salamanca. To Dr. and Mrs. Hubbell was born on June 27, 1873, one child, a daughter, Bula, now Mrs. Everett Ward Olmsted of Ithaca. The deceased is survived by these immediate members of his family and by one sister, Mrs. Alma M. Hill of Conewango.

“Dr. Hubbell received his early education at the public schools of Conewango and at Randolph academy (later Chamberlain institute). He studied medicine at Philadelphia, Pa., and at the University of Buffalo, from which latter institution he received the degree of M.D. in 1876. In 1893 Niagara university granted him the honorary degree of Ph.D.

“Dr. Hubbell practiced general medicine and surgery at Leon, 1876-1880, when he removed with his family to Buffalo.

Here he continued his general practice from 1880 to 1883 in which he gave evidence of brilliant ability.

"During his general practice of medicine, and only two years after his graduation, in 1878, he performed laparotomy for intussusception of the intestines, the fourth time that it had been done for this condition in the United States.

"From 1883 until the end of his life Dr. Hubbell devoted himself exclusively to ophthalmology and otology, in which branches he came to be recognized as a leading authority. He had occasion to perform many difficult operations, and added materially to the appliances for the practice of his specialty. In 1884 he devised an improved electro-magnet for extracting steel from the interior of the eye, and, a new form of ear scissors, designed for him by George Tieman & Co., of New York; throughout his eminent medical career he was ever an earnest advocate of higher medical education, and did much to further advance in medical standards.

"As well as being of a brilliant inventive genius, Dr. Hubbell had strongly developed in him the spirit of the founder or originator of great undertakings. He was one of the first movers in the foundation of the medical department of Niagara University, of which he became professor of ophthalmology and otology, and secretary to the faculty, in 1883. In 1898, when the medical faculty of Niagara University united with that of the University of Buffalo, Dr. Hubbell was made clinical professor of ophthalmology, a position that he occupied until he reached the age of 65, in the spring of 1911, when he was made professor emeritus.

"His valuable services were prized by all of the hospitals of Buffalo that were fortunate enough to secure them. He was ophthalmic surgeon to the Erie County Hospital, of which he was one of the founders, of the Riverside Hospital of the Charity Eye, Ear, Nose and Throat Hospital of Erie County, of which he was one of the founders and directors, of the Buffalo Hospital of the Sisters of Charity and of many others of Buffalo's well-known hospitals.

"He always kept in touch with the leading oculists of Europe as well as of America, and his studies took him across the Atlantic three times (in 1892, 1894 and 1899), where he visited the leading ophthalmic hospitals of Birmingham, London and Paris.

"His writings were numerous and varied. He was author of the section on Diseases of the Eye in Dr. de Schweinitz's American textbook of Diseases of Eye, Philadelphia, Pa., 1899, of The Development of Ophthalmology in America; 1800-1870, Chicago, Ill., 1908 and of many contributions to medical journals. He was former associate editor of the Buffalo Medical Journal. He was also of the editorial staff of the Ophthalmic Record of Chicago, Ill.

"He was ever keenly interested in the historical aspects of his profession, as can be seen from a number of historical articles of which he was author, as well as by a historical work upon the great early oculist, Daviel, upon which he was engaged at the time of his death.

"That Dr. Hubbell was highly esteemed by the profession in which he was engaged is evident from the numerous positions of honor that he held in the medical associations of which he was a member. He belonged to the following medical societies: The Buffalo Academy of Medicine, the Buffalo Medical Union, the Buffalo Ophthalmological Society, the Erie County Medical Society, the Medical Association of Central New York (of which he was president in 1892), the New York State Medical Association (of which he was president in 1902), the Medical Society of the State of New York, the New York Academy of Medicine, the American Medical Association (of whose section of Ophthalmology he was chairman, 1908-09), the American Ophthalmological Society, the Pan-American Medical Congress, the Ninth International Ophthalmological Congress, the Eighth International Ophthalmological Congress, held at Edinburgh in 1894 and of the Ninth held at Utrecht in 1899. He was also a member of the medical fraternity Nu Sigma Nu.

"But his interests were broader than his profession. He was likewise member of the Buffalo Society of Natural Sciences, of the Buffalo Historical Society and of the Buffalo Club. He had also been a member of the Sons of the American Revolution, through his paternal great-grandfather, Ezbon Hubbell, and his maternal great-grandfather William Farnsworth.

"He was ever an eager student of religious phenomena. In church affiliations he was a Unitarian, and for many years had been a regular member of the Unitarian church of this city."

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (P. & S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (Inf.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pussey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XX

CHICAGO, OCTOBER, 1911

No. 10, New Series

ORIGINAL ARTICLES.

THE HISTOPATHOLOGY OF DIPLO-BACILLARY CONJUNCTIVITIS.

FROM AN EXAMINATION OF TWENTY CASES.

From the Pathological Laboratory of the Montreal General
Hospital

BY HANFORD MCKEE B. A., M. D.

MONTREAL.

Illustrated.

The first description of the tissue changes in Diplo-bacillary conjunctivitis was given us by Stock, who found hypertrophy of the epithelium in the region of the lid margins and macerated skin, with development of glandular ingrowths. He also found a widespread infiltration of the mucosa with enormous numbers of goblet cells.

Mayou stated that in this condition it was only the less resistant plasma cells which were multiplied in the subepithelial tissues. Morax and Petit examined a fresh ulcerated and perforated Leucoma Adherens and found in the infiltrated margins numerous diplo-bacilli which stained best with Nicolle's Carbol-thionin.

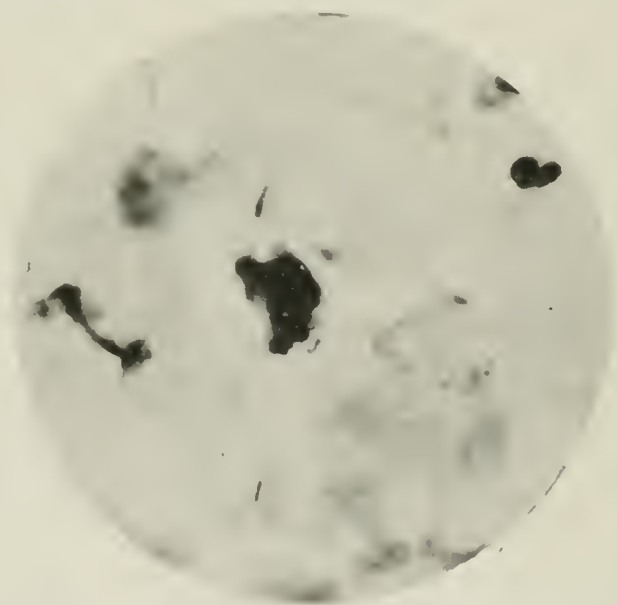
Pusey confirmed Stock's report and went farther by finding the diplo-bacilli in the tissues. In June last, Miyashita published an account of his examination.

From time to time during the last few years I have examined tissue taken from suitable cases. The tissue was taken from the palpebral conjunctiva of adult patients who had a marked conjunctivitis and where diplo-bacilli were present in large numbers.

The study of excised pieces of tissue is of limited value, but in many cases the palpebral conjunctiva only, shows signs of inflammation so that a study of a series of pieces of tissue from the tarsal conjunctiva may be of as much value as the study of one whole eye.

The tissue was all fixed in Zenker's solution and hardened in alcohol. Extra pieces were fixed by different methods. All the tissue was imbedded in paraffin and stained with eosin-methylene blue. A description of each piece would be somewhat of a repetition, so I shall give a microscopic description of six of the cases which together bring out the different points I wish to emphasize.

1. The whole histological picture is that of a chronic inflammation upon which an acute one has been superimposed. The epithelial layer is everywhere infiltrated with polymorphonuclear leucocytes. The subepithelial tissue shows a profuse infiltration with lymphoid and plasma cells which are denser immediately about the blood vessels. The plasma cell

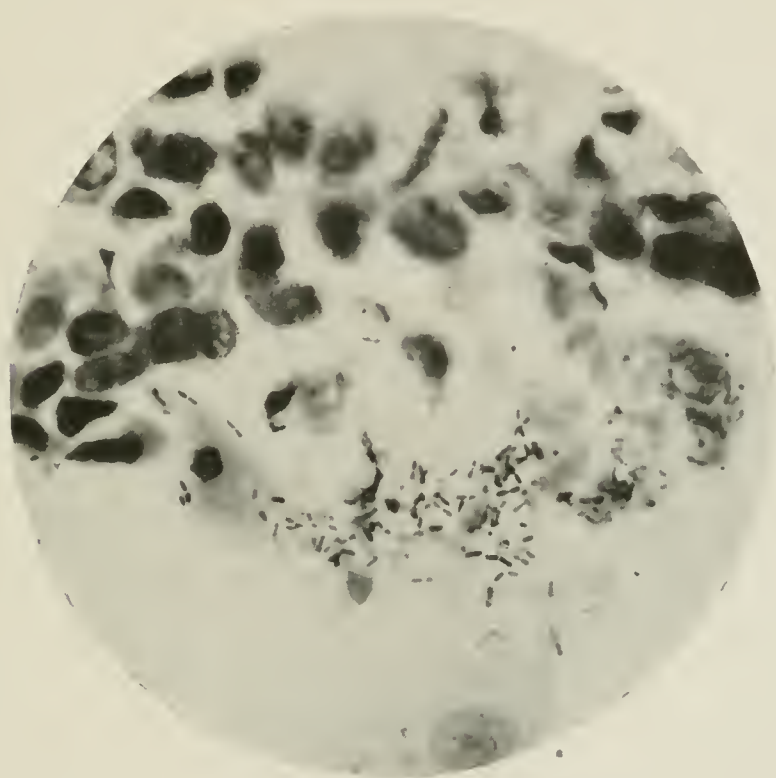


type predominates. There are also a few scattered eosinophiles of the mononuclear type. The capillaries are dilated and show great numbers of polymorphonuclear leucocytes. These can be traced in a broken line from the vessels to the epithelium.

At one part of the section the epithelium is diverticulated forming a well defined pouch which is completely filled over with detached epithelium, nuclear fragments, red blood cells, fibrin and detritus. There is some evidence of organization of this mass in the invading fibroblasts which apparently come from the subepithelial layer where there are numerous masses of young connective tissue cells.

2. The striking feature in this specimen is the multiple cyst formation in the epithelial layer. These cysts vary in size, and for the most part are filled with serum and polymorphonuclear leucocytes. Some of them show direct communication

through small openings with the surface. The cyst wall consists of flattened out epithelium. They are presumably the result of mucoid accumulation which has not been discharged and subsequently invaded by polymorphonuclear leucocytes, and are rather unique, as this is the only case in which they are seen in this series. The subepithelial tissue is diffusely infiltrated with lymphoid and plasma cells, the latter predominating, while eosinophiles are not infrequent here. There is an entire absence of polymorphonuclear leucocyte infiltration in the subepithelial layer.



3. The cells of the epithelial layer are for the most part ballooned or swollen with edema. This condition is seen only in a moderate number of the epithelial cells, but is the characteristic feature of the section. The subepithelial layers contain aggregations of lymphoid and plasma cells which lack the characteristic appearance of the trachoma follicle. One of them is about a Meibomian duct. Many of the lymphatics are engorged with lymphoid cells. There are a few eosinophiles but polymorphonuclear infiltration is absent.

4. The striking feature here is the close proximity of the lesion to the epithelial layer. There is a dense lymphoid and plasma cell infiltration confined to the connective tissue just beneath the epithelial layer. The cells are largely of the type seen in trachoma, large, light staining cells with vesicular nuc-

lei. A second striking feature is the great distention of the underlying lymphatics with lymph cells. There are numerous mononuclear eosinophiles throughout the section. Polymorphonuclear infiltration is practically absent.

5. The epithelial cells contain large spherical or ovoid masses of what look like mucus. Many of them have the appearance of goblet cells. The epithelium is everywhere invaded with polymorphonuclear leucocytes. At one part of the section the subepithelial tissue is densely infiltrated with lymphoid and plasma cells. Immediately between this area and the underlying epithelium there is a large number of young connective tissue cells. They in places invade the epithelium, which at this point is thrown into furrows. The subepithelial tissue is thickly beset with eosinophiles.

6. Many of the cells in the epithelial layer represent the so called goblet cells because of their mucus contents. The epithelium in places shows rather a marked polymorphonuclear infiltration. This is seen only in a moderate number of the epithelial cells, but is the characteristic feature of the section. The absence of polymorphonuclear leucocytes in the subepithelial tissue suggests that they are from the conjunctival sac. A mild grade of chronic inflammation is seen in the subepithelial tissue. The vessels are dilated and injected, and the perivascular tissue oedematous. In one part of the section there is a beginning new growth of connective tissue just beneath the epithelium. The conjunctiva is thickened because of this increase in the connective tissue of the subepithelial layer. This connective tissue like any connective or scar tissue sooner or later contracts, but does not do so equally.

This contraction pulls down the epithelial covering at various points and explains the foldlike appearance of the epithelial layer. This has the appearance of a tube, but it is not a tubule. All end blindly and in no sense are they connected with secretory glands.

Diplo-bacilli in the Tissue. Stock did not find Bacteria in the tissue which he examined, but expressed the opinion that the diplo-bacilli were probably restricted to the surface of the epithelium.

Morax and Petit found numerous diplo-bacilli in the infiltrated margin of an ulcerated Leucoma Adherens. They stained best with Nicolle's Carbol-thionin.

The following is from Pusey's article: "Between the sup-

erficial cells of the epithelial cell layer occasionally one finds diplo-bacilli. The organisms within the epithelial cell layer are rare, and apparently do not penetrate deeply, for in a search through many sections I did not find them below the second layer of cells. In the subepithelial tissue, I did not find bacteria.

Miyashita was not able to demonstrate the diplo-bacilli in the tissue.

In the first six cases examined, I stained a series of slides with Wright's stain. The demonstration of the diplo-bacilli was very easy. They were found on the surface of the epithelial cells in large numbers, and between the epithelial cells were seen in smaller numbers.

The diplo-bacilli were further found in the subepithelial tissue. They were not intra-cellular but found lying free here and there in the tissue. They were seen in the deepest parts of the subepithelial tissue. The demonstration of the diplo-bacilli in the deep parts of the subepithelial tissue may help to explain the chronicity of this form of conjunctival infection.

CONCLUSIONS. The true appearance of the tarsal conjunctiva in this form of inflammation is a nodular one. The essential lesion here is in the subepithelial layer and consists of a mild chronic inflammatory process as shown by the increased connective tissue, the infiltration with lymphoid and plasma cells, and the large number of eosinophiles. Occasionally a section through a Meibomian gland goes through the duct, but this is a normal occurrence and shows no contraction of the connective tissue. Diplo-bacilli may be demonstrated on the surface of the epithelial cells and in the deep parts of the subepithelial tissue.

Figure 1 is a micro-photograph of 1,500 diameters showing numerous diplo-bacilli on the surface of the epithelium.

Figure 2 shows a diplo-bacillus in the deepest part of the subepithelial tissue.

I am indebted to Dr. C. W. Duval, formerly director of the Laboratory for assistance with this work.

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PUSEY: Archives of Ophthalmology, January, 1909.

MAYOU: Quoted by Pusey.

MIYASHITA: Klin, Monats, fur Augen, May and June, 1910.

A CASE OF AMBLYOPIA DUE TO THE INGESTION
OF ONE HUNDRED AND TWENTY
GRAINS OF QUININE
SULPHATE.

GEORGE F. KEIPER, A. M., M. D.

LAFAYETTE, IND.

Eye and Ear Surgeon to St. Elizabeth Hospital, St. Joseph Orphan Asylum, Children's Home, St. Anthony's Home for the Aged, Etc., Etc.

Through the courtesy of Dr. I. N. Cochran, of Delphi Ind., the writer was called to see Mr. D. J. aet. 75, who had been blind since November 12th, 1905. The writer saw the patient for the first time November 20th, 1905.

The history of the case is as follows: For several days prior to November 12th he had been drinking heavily, imbibing freely of whiskey. On the above date he took 120 grains of quinine sulphate, whereupon he became totally blind, the next morning. Dr. Cochran was called, and proceeded to eliminate the poison as rapidly as possible by the kidneys and bowels. Strychnia sulphate had been given by the mouth and hypodermic injection, prior to my visit.

At the time of my visit on November 20th we found his vision to be 20/CC in each eye. His near vision was limited to reading the largest type of the Jaeger scale with his glasses. The pupils, which had been moderately large, were now quite normal as to size and shape. But they refused to react to light and shade and to accommodation. His color sense was fairly good to red, blue, rose and green, according to the Holmgren test. The fields of vision had to be taken by hand. They were found to be contracted to form and color. The contraction being about one-half. No scotomata showed themselves in this or subsequent examinations, thus.

Examination of the urine showed nothing pathological although one month previous albumen had been present according to an examination made by Dr. Cochran.

The ophthalmoscope showed all intraocular structures to be normal save a paleness of the optic nerves heads and contraction of the retinal vessels. Both macular regions were quite pale. The left retina showed a spot of retinitis, below and to the left of the disc, about one disc diameter away.

He was placed in St. Elizabeth Hospital on November 20th and the treatment with the strychnia was continued as before. In addition he was given ten grains of capsicum every four

hours, to help him quit the use of tobacco, to which he was addicted. His bowels were kept open.

He remained in the hospital until December 18th. His vision then was as follows: O. D. 20/e and O. S. 15/cc. Both optic discs still appeared atrophic and the smaller retinal vessels were absent. He was ordered to continue treatment as before and to report once a week for observation and advice. On April 23, 1906, the vision of the right eye was 20/xl, and with a plus one dioptre lens it was improved to 20/xxx. The vision of the left eye was 20/ee, and with a plus 1.50D lens it was improved to 20/xl. The right eye was able to read No. 2J with a plus 3.50D lens and the left eye with a plus 4.00D lens.

The case is interesting in several of its features, especially from the standpoint of the age of the patient, his age exceeding the age of any case reported. In the compilation made by De-Schweinitz in his work on "Toxic Amblyopia" the oldest case reported was sixty-five years of age. He compiled sixty-nine cases whose ages varied from five to sixty-five years.

TWO CASES OF EMBOLISM WITH RETENTION OF CENTRAL VISION.

ALBERT C. SNELL, M. D.

ROCHESTER, N. Y.

Illustrated.

Since Von Graefe in 1858 first described a case of central blindness from obstruction of the central artery of the retina, similar cases have been observed with much interest. Although these two cases which are herewith reported do not present anything strikingly new, they present some points of unusual interest. The fields of vision graphically illustrate the involvement.

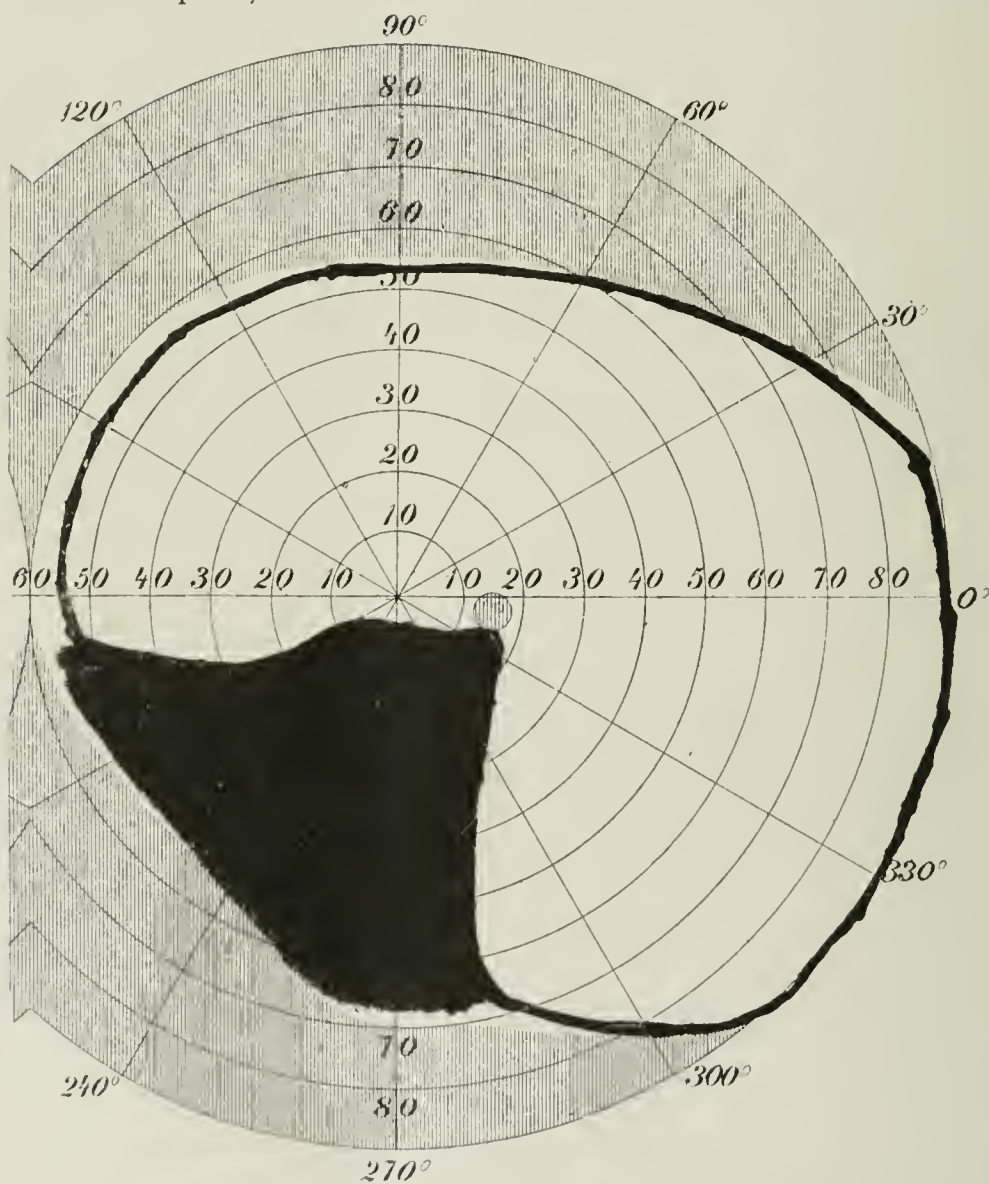
Case I is that of a man 56 years of age, a purchasing agent by occupation. On September 2, 1909, he consulted me, stating that one week previous he had noticed a sudden loss of vision in the right eye. This disturbance has persisted to date. He states that he can see with this eye, but a "blank area seems to follow" wherever he looks.

The ophthalmoscopic examination showed a decidedly pale area occupying the entire upper, outer quadrant of the retina. The edges of this pale area were very clearly defined being in strong contrast to the healthy red color of the unaffected retina. The vertical edges extended almost directly upward from the temporal edge of the disc and the horizontal edge formed a nearly

straight line outward, taking a slight curve upward beyond the macula. The central artery of the retina divided at the center of the disc into a single superior and a single inferior retinal artery. Both of these subdivided again into a single nasal and temporal branch, the division taking place at the edge of the

CASE I

DATE Sept. 2, 1910 NO. 329
RECORD 10 M M White



disc. A cilio-retinal artery of good size was present. The superior temporal artery abruptly lost its blood column about a quarter disc diameter from the disc. The artery could be distinctly seen beyond this point, empty of blood except for several beads which were not influenced by external pressure. There was no hemorrhage, no oedema, no cherry spot, and veins were not enlarged nor tortuous.

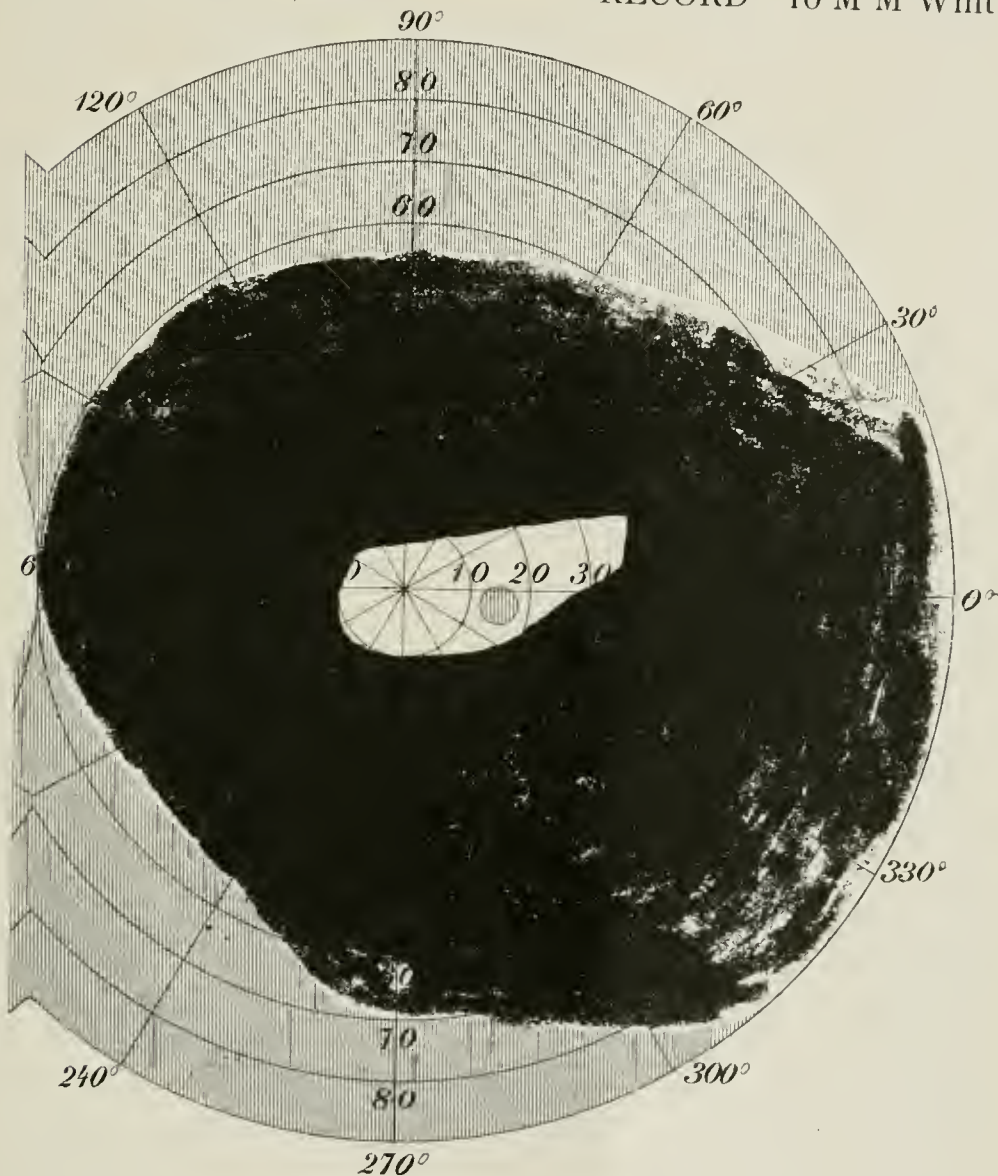
Vision was 20/20 with the correcting lenses. The field was taken on the first visit, again three weeks later and again after three and one-half months. All three fields are practically alike. This patient has had mitral valve lesions for a number of years, but has not been incapacitated for work thereby.

CASE II

DATE June 11, 1910

NO. 37

RECORD 10 M M White



Diagnosis: Embolism of temporal branch of the superior retinal artery.

Case Two—Mrs. C., 25 years of age, consulted me June 11, 1910, stating that five days previous there was sudden loss of vision in her right eye. The ophthalmoscopic examination revealed a typical picture of embolism of the central artery of the retina—arteries were small and empty, the entire retina pale and

anaemic throughout except for a very small pear-shaped area extending from the temporal edge of the disc outward beyond the macula. This area was nourished by a cilio-retinal artery and retained its normal healthy color. There was absence of cherry spot.

Vision in this eye June 11 was 20/30. The field of vision was taken on the first day of consultation and again four months later and were alike. Vision on date of last examination was 20/20.

You will observe that in both of these cases there was present a cilio-retinal artery and this was undoubtedly responsible for the retention of perfect central vision in each case.

A NEW OPERATION FOR PTERYGIUM.

BY DANIEL W. WHITE, M. D.,
Eye and Trachoma Expert At Large, Department of the Interior,
PAWNEE, OKLA.
U. S. A.

Illustrated.

From ancient times Ophthalmic surgeons operated for pterygium and devised many methods for its removal—but as yet no ideal method has been proposed. In my experience of inspecting more than 150,000 Indians, I find pterygium very common. The female presents almost twice as many as the male. The active pterygium is dark in color, very vascular, thick and somewhat elevated and its outline is very easily marked. The head may be small or large and encroach on the cornea margin or on to the pupillary cornea and in a few cases extend to the temporal side. Whenever the pupillary area is involved, pterygia becomes malignant, causing disturbance of vision.

The passive or non-active pterygium is thin, not well defined, pale, grayish in color, non-vascular as compared with the active. The vessels are small. It may encroach very slightly on the cornea, but as a rule extends only to the cornea-scleral margin. The pterygium is irregular in shape.

The first operation of choice was excision. Ligation was also practised. Those methods were criticised on account of leaving a raw surface to cover after removing the pterygium. Finally Desmarres' devised transplantation. It was now found the growth would atrophy after being diverted from the cornea. This method became very popular and is used almost entirely to-

day. The pterygium incision was made from the head to the inner canthus on its superior margin and also an oblique incision was made from the inferior margin of the pterygium to the inner canthus. The head is undermined and dissected from the cornea and affixed with a suture and transplanted or buried beneath the conjunctiva, divergent to the cornea. McReynolds of Texas improved upon this method. He only unloosened the superior margin of the pterygium from the cornea. He did not extend his incision towards the inner canthus superiorly, but on the

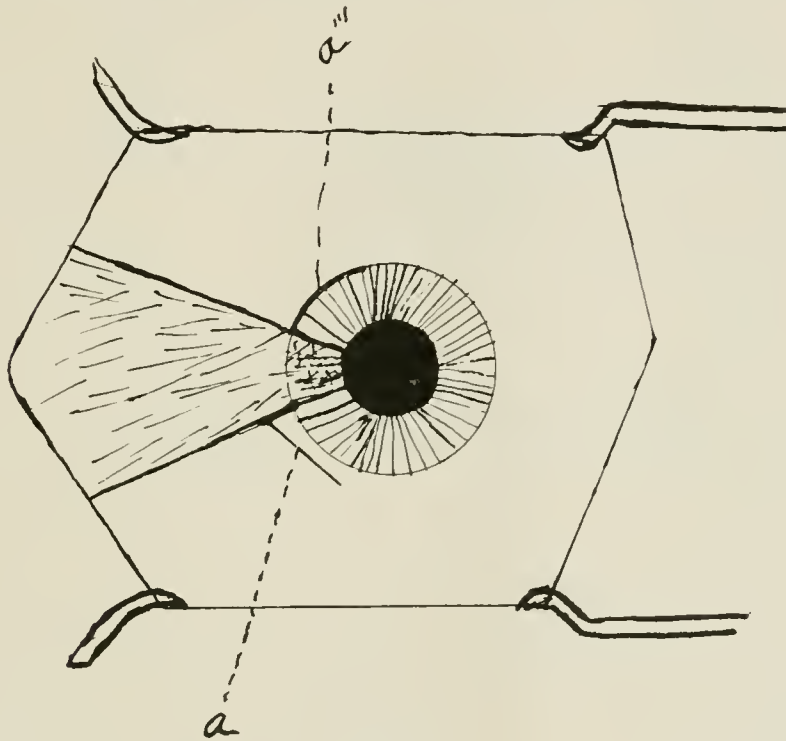


Figure 1.

a —New incision.

a'''—Circumcorneal scleral incision.

inferior margin of the pterygium he extended an oblique incision to the inner canthus. He now transplanted or buried the pterygium beneath the conjunctiva with a double-armed thread. L. Webster Fox's simple transplantation has been successful. He uses conjunctiva sutures and also buries the pterygium. All those methods have their drawbacks, either with exposed sclera, or slipping of suture, or elevated and roughened conjunctiva, or irritation from conjunctiva sutures, or gaping of conjunctival wound, or slipping of a thick head from under the conjunctiva, or in some cases a retraction of the parts leaving small knobs or pinguecula.

In presenting my operation for pterygium after an experience of 81 cases, I find that it is applicable to all form of

pterygia. The steps are as follows: The head of the pterygium is separated from the cornea by making a small puncture at the superior border of the pterygium at the corneo-scleral margin and then a small puncture is made at the inferior margin of the

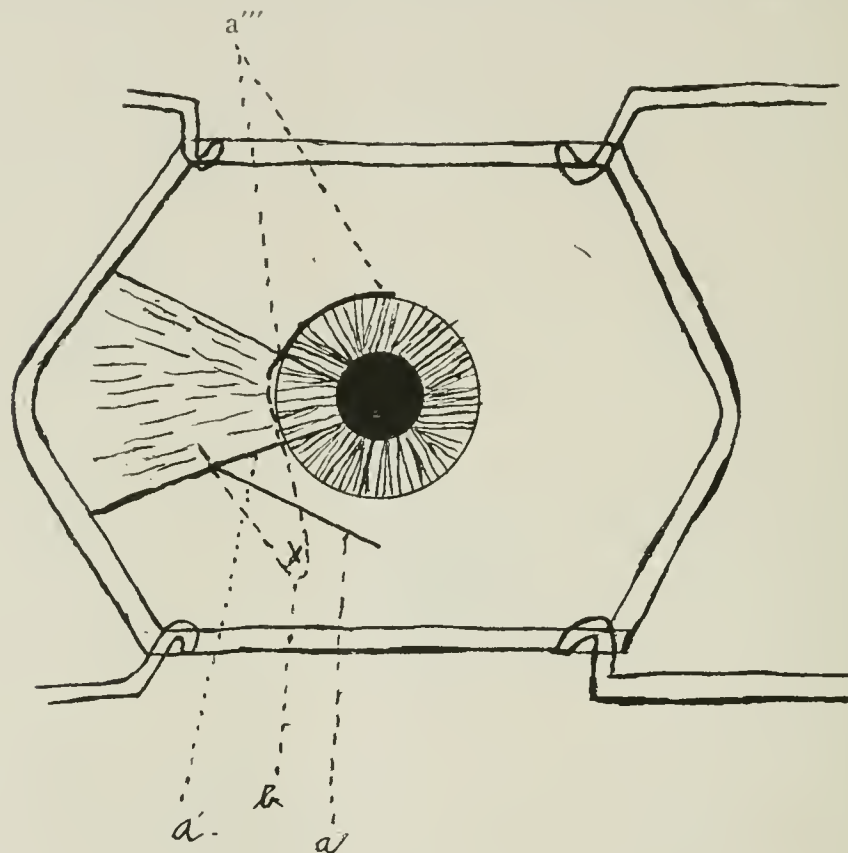


Figure 2.

Showing Pterygium and Transplantation with Incision.

x —Sutures tied.

a —New incision.

b —Transplanted pterygium beneath a, showing hugging.

a' —Small oblique incision.

a'''—Circumcorneo scleral incision.

pterygium at the corneo-scleral attachment. A small head strabismus hook is introduced through the two punctures and under the corneal portion of the pterygium and traction is made towards the pupillary attachment of the pterygium in a see-sawing motion. The attachment of the head on the cornea is removed by using a silk thread and sawing towards the pupillary area. This thread is introduced beneath the pterygium with a needle, making it an easy procedure. Sometimes I shave the head from the cornea with a keratome or sharp knife. A circumcorneo-scleral incision or dissection (A''', Plates Nos. I, II, III, IV, V, VI) is made in the conjunctiva with a pair of scissors, above the superior margin of the pterygium for a considerable distance. The length of this incision depends upon the size of the pterygium

whether it is large or small. Judgement and experience will guide you in this. The next step, an oblique incision, is made from the inferior margin of the pterygium towards the cornea (A', Plates Nos. I, II, III) not towards the inner canthus, or

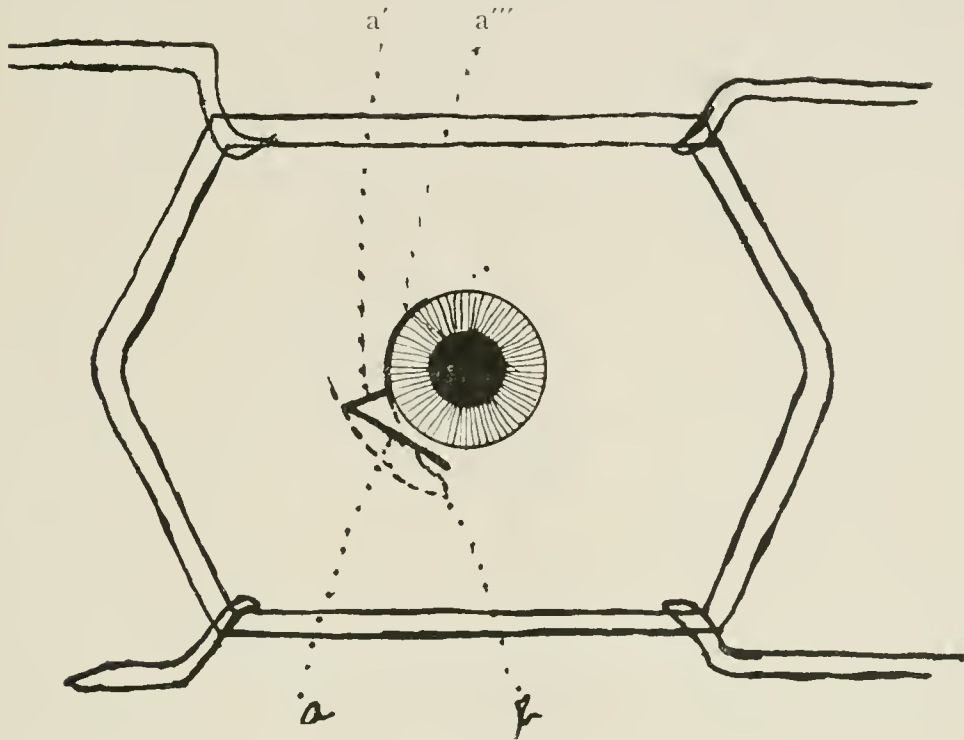


Figure 3.

Showing Pterygium Transplantation with natural curve on traction in line of incision and conjunctiva hugging cornea.

a —Incision, new.

a' —Short oblique incision which may be made.

a''' —Circumcorneo scleral incision.

b —Transplanted pterygium.

an ellipsoidal incision may be made towards the cornea (A, Plates Nos. IV, V, VI). The incision may be made with the curve up or towards the cornea or it may be made with the curve away from the cornea. The incision which curves away from the cornea should be made when you fear denudation of the sclera from any cause. This form of incision forces the conjunctiva up against the corneal margin snugly and closely. I desire to commend Geo. H. Phillips, Pawnee, Oklahoma, for this suggestion of the curve away from the cornea and for many other aids he furnished in our daily association. The operator has the choice of these two incisions. The classical incision is from the cornea along the inferior border of the pterygium to the inner canthus. The incision which I make starts at the inferior border of the pterygium near the cornea and runs parallel to and just below

the cornea and at an obtuse angle to the classical incision. You avoid any undue tension when making traction on the pterygium head. This traction is made on the same line as your incisions (A', Plates Nos. I, II, III and A, Plates Nos. IV, V, VI) and

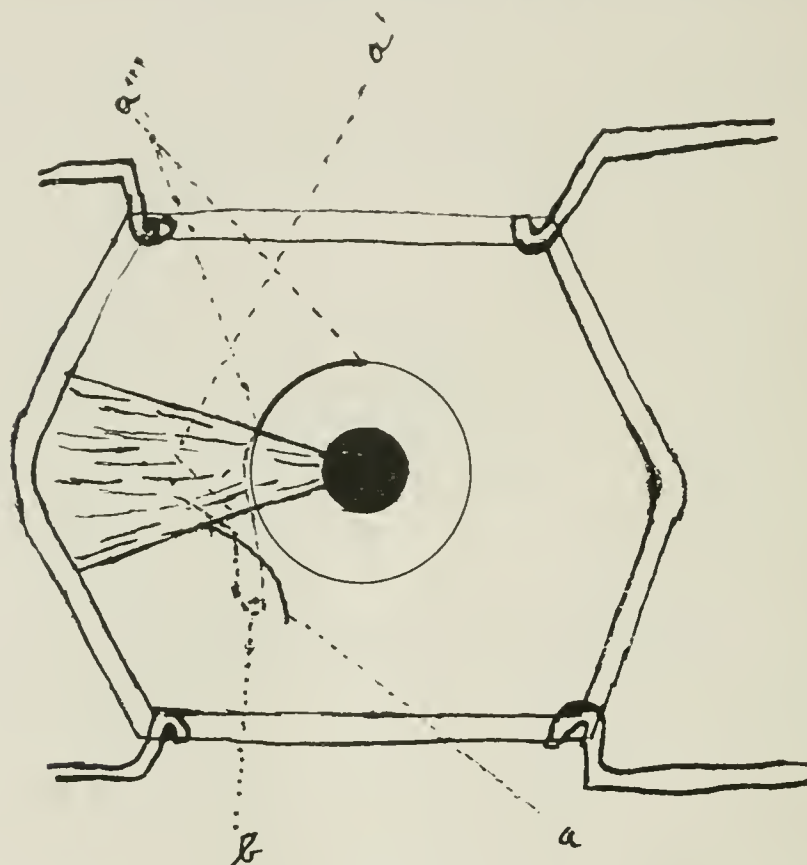


Figure 4.

Pterygium with curved incision. Traction on head of pterygium made in line of incision.

a —New curved incision.

a' —Short oblique incision which may be made.

a''—Circumcorneo scleral incision.

b —Head of pterygium, showing traction in line of incision.

when you transplant the pterygium in the conjunctival pocket you have a smooth surface. Sometimes I make a very short oblique incision (A', Plates Nos. II, III, IV, V) one mm. or more in length towards the inner canthus and then extend the new incision (A, Plates Nos. I, II, III, IV, V, VI) from that point. The inferior margin of the pterygium is undermined with a strabismus hook as far as the insertion of the inferior rectus muscle in order to make a pocket for the pterygium and a double-armed thread suture is entered through the head of the pterygium and the head is now transplanted or buried beneath the undermined conjunctiva, and the needles are passed out through the conjunctiva (a few mm. apart) and tied, gen-

erally on a small wedge of gauze. The conjunctiva is raised and stretched over the transplanted pterygium with small forceps. This makes the conjunctiva smooth and the pterygium is firmly

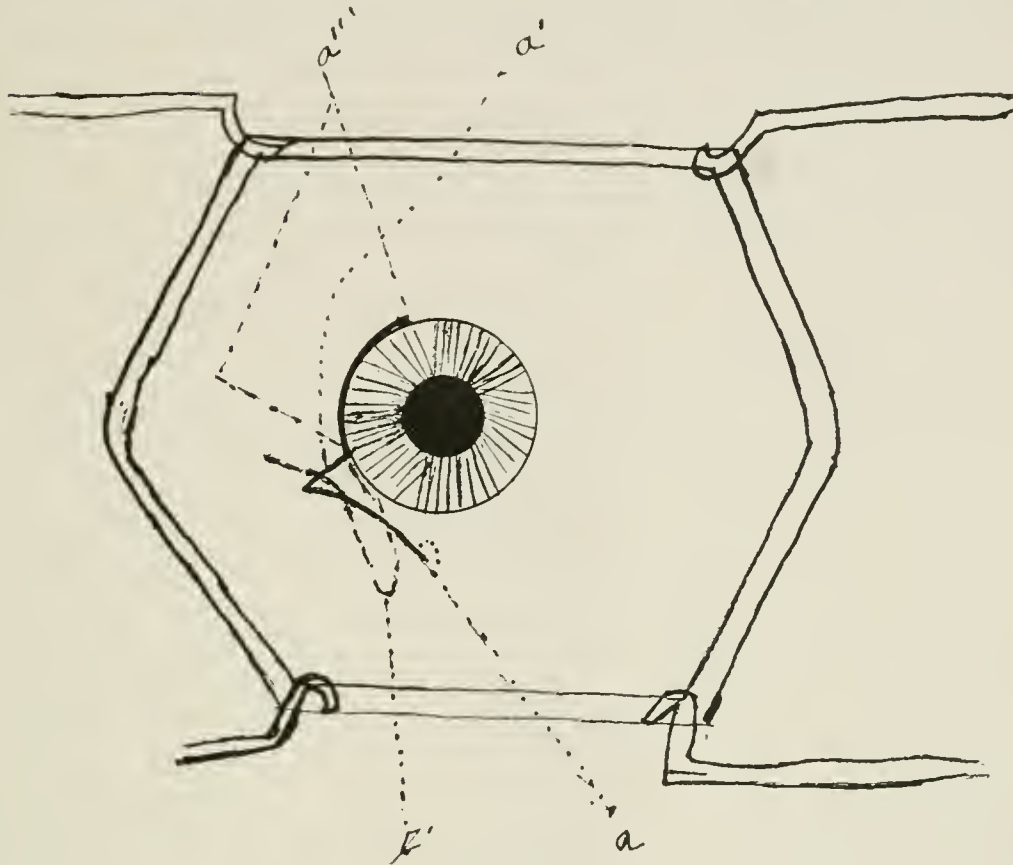


Figure 5.

Pterygium transplanted and curved incision, showing closely snugged cornea and line of traction in line of incision.

a —New curved incision.

a' —Short oblique incision.

a''' —Circumcorneo-scleral incision.

b —Transplanted pterygium following in line of traction of curved incision.

buried before the sutures are tied. When the pterygium is transplanted traction should be made on the head, the sclera is now securely covered and the cornea is hugged (not overlapped). No exposed sclera exists and a natural and smooth surface is secured when traction is made on the pterygium. Before I affix the pterygium I undermine it towards the canthus and dissect the episcleral tissue for a few mm. and cauterize the surface with tincture of iodine. By this incision (A, Plates I, II, III, IV, V, VI) you replace the conjunctiva over any raw sclera surface and the tissue at the site of the pterygium is smooth. The incisions (A, and A''', Plates I, II, III, IV, V, VI) do not cause you to make traction of the pterygium opposite to its circular curve in order to transplant it and do not cause unevenness of

the conjunctiva as does the old classical incision towards the inner canthus, and they also prevent a denuded sclera area when the traction is made in direction of the incision (A, and A', Plates I, II, III, IV, V, VI) and causes a close-fitting corneal con-

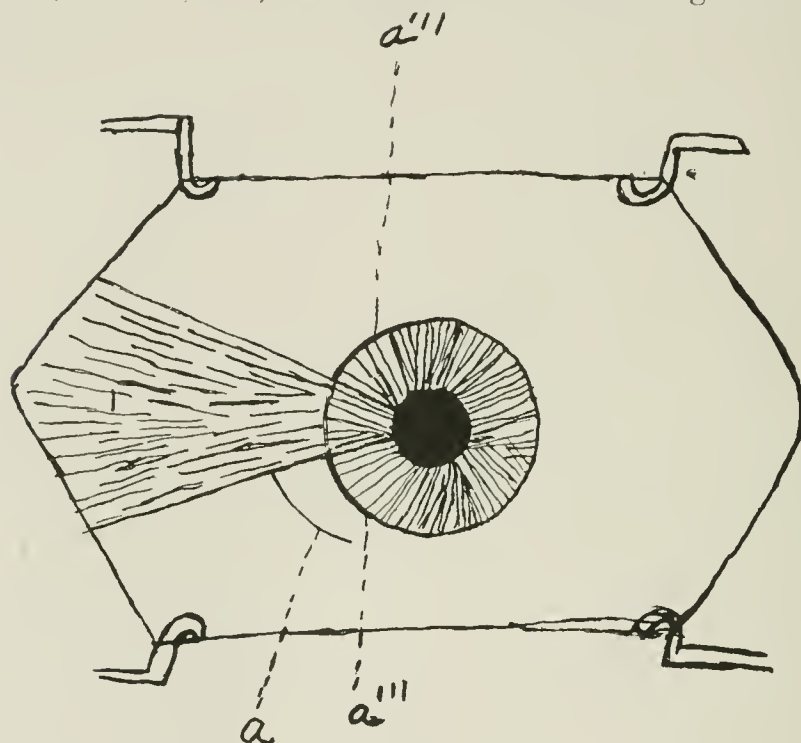


Figure 6.

Pterygium, showing the curved (out) incision with upper circumcorneo-scleral incision and also showing method of transplantation by using only the incisions a and a'.

a—New curved (out) incision.

a'' and a'''—incisions, circumcorneo-scleral.

conjunctiva. I have not seen any conjunctiva overlapping or approaching the cornea. I have also transplanted pterygium by unloosing the head from the cornea at the interior and superior margins of the pterygium and making a circumcorneo-scleral incision beginning at the superior and inferior borders of the pterygium A''', Plate No. VI) and carrying the incision for a few mm. each way along the sclero-corneal border. The head of the pterygium is brought down and beneath the lower incision where it is completely buried under the conjunctiva. The incision above loosens the pterygium so as to make this procedure possible. No other incision is needed and there are no denuded surfaces (Plate No. VI). I have not had the necessary experience to state the success of this last procedure.

I trust my colleagues will put the methods into use and notify me of their experience. Any information concerning the methods of the operation I shall be glad to furnish.

Carbondale, Pa., March, 1911.

REPORT OF THREE CASES OF XEROSIS EPITHELIALIS WITH INVOLVEMENT OF THE CORNEA.

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In view of the comparative rarity of this condition, I thought it might be of interest to report the following cases:

Case No. 1—A. A., Trinidadian, age 25, laborer, on the Isthmus one year; admitted to Ancon Hospital June 13th, 1910. At that time he stated that he had gotten coal dust in his left eye. There was acute conjunctivitis with a marginal corneal ulcer on the temporal side, involving about one-half of the circumference of the cornea. Vision was normal in the right eye and 20-200 in the left. The cornea was more or less infiltrated. There was marked photophobia with profuse lacrimation. The condition was thought, on admission, to be one of serpigenous ulcer and was treated accordingly, but it did not spread as rapidly as this form of ulcer usually does, nor did it respond to treatment. Later, vision was reduced to the counting of fingers at three feet. More vigorous treatment was instituted and two subconjunctival injections of 15 minims each of normal salt solution were given at ten day intervals. This seemed to aggravate the chronic process. The margins of the ulcer were more or less undermined and the surface of the cornea traversed by the necrotic process was roughened and of a grayish color. The unaffected portion was transparent and healthy. At this time a culture was taken from the surface of the cornea and the conjunctival sac, which revealed the presence of bacillus xerosis in pure culture. Since this organism is closely associated with bacillus diphtheria and the pseudo-diphtheretic bacillus, it was deemed advisable to administer 6,000 units of diphtheretic antitoxin. Later the actual cautery was applied on two occasions with no beneficial effects. The patient was well nourished and showed no evidences of malnutrition. He was finally discharged from the hospital at the expiration of ten months with his eye practically useless. The ulceration after having travelled over the entire cornea subsided spontaneously.

Case No. 2—R. C.; Barbadian; age 22; on the Isthmus three and one-half years; admitted to Ancon Hospital April 22nd,

1911. States that four days before entering hospital "coal dust blew into his right eye which started a running of water." He also stated that a month prior to admission his eye had been "pricking" him from time to time, especially when he rotated the eye ball. On admission there was slight swelling of the lids, chemosis of the ocular conjunctiva with hyperplasia of the palpebral conjunctiva, photophobia, profuse lachrymation, ciliary injection and hyperaemia of the iris, with a large superficial ulcer on the center of the cornea. Vision was reduced to light perception. None of the characteristic yellow fatty spots were present on the palpebral conjunctiva, nor did the bulbar conjunctiva show any of the yellow triangular areas on either side of the cornea in the palpebral fissure. The margins of the ulcer were slightly undermined. In spite of the usual treatment for ulcerative keratitis the disease continued to spread. There was no history of lues nor was there present any of its constitutional manifestations, and the Wassermann reaction was negative. The margins of the ulcer were thoroughly cauterized with tincture of iodine but it did not check its progress. On June 12th a culture was taken from the eye and a pure growth of bacillus xerosis was obtained. This patient was also apparently well nourished and presented none of the constitutional conditions which are usually associated with kerato-malacia. Notwithstanding, he was put on a more nutritious diet and given a dram of elixir of iron, quinine and strychnine three times a day, together with urotropin, 10 grains, t. i. d. The eye was kept bandaged and antiseptic irrigations of all kinds used two or three times a day, together with every other known means of local treatment.

After ten days or two weeks of this treatment, the cornea showed marked signs of improvement. The progress of destruction was practically arrested and about one-third of the cornea saved. Vision—counts fingers at eighteen inches.

Case No. 3—E. M.; Martiniquan; admitted May 17th, 1911; laborer; on the Isthmus two years; age 30; has been in hospital twice with malaria. Apparently well nourished. Entered hospital with marked swelling of the upper eyelid of the right eye; slight conjunctivitis, ciliary injection; iris practically normal. Slight hypertrophy of the lacrimal gland. The conjunctiva did not present any of the yellow fatty patches. There was photophobia with profuse lachrymation, with vision of 20-200 in the affected eye. The clinical picture of the eye at first suggested one

of a syphilitic character although the patient denied a history of primary lesion and there was no general glandular enlargement. The first Wassermann was negative, although a second Wassermann reaction taken twenty days later was found to be positive. There was a superficial ulcer on the lower segment of the cornea about three mm. in diameter. The case was unlike the two previous ones in that the ulcer was very superficial and did not involve any of deeper structures of the cornea, and its margins were more or less ill defined and not undermined.

On June 24th a culture was taken from the eye and bacillus xerosis was isolated in pure culture. In the meantime, the eye

		Sterile	Pure Culture Bacillus Xerosis	Bacillus Xerosis with Biscuit-shaped Diplococcus Unidentified	Micrococcus Aureus	Micrococcus Albus
American.	O D	70%	20%	....	....	10%
"	O S	100%	....	....	....	....
European.	O D	89%	....	....	10%	10%
"	O S	70%	15%	....	....	15%
Negroes..	O D	66 $\frac{2}{3}$ %	33 $\frac{1}{3}$%	....	....	....
"	O S	87%	3%	10%	....	....

had been resistant to all kinds of treatment. After the second Wassermann proved to be positive 0.6 of a gramme of Salvarsan was administered intravenously. This seemed to diminish the profuse lacerimation and edoema of the lids, but did not have any effect upon the cornea. As soon as the bacillus xerosis was found to be present, a full diet with extras, together with elixir of iron, quinine and strychnine and urotropin 10 grains t. i.d. was given. Ten days later the eye showed signs of improvement, the denuded area of the cornea began to become covered with a healthy layer of epithelium. Profuse lacerimation had ceased, the conjunctiva, both ocular and palpebral was still slightly thickened, and his vision increased from 20-200 to 20-70.

A series of cultures were taken from forty patients in the wards of the Eye & Ear Department of Aneon Hospital, including the three cases here reported, to determine the relative presence of bacillus xerosis. These cultures were taken from each eye at the same time, none of the patients except those mentioned in this report had any evidences of kerato-malacia.

It is interesting to note that among the Americans the cultures taken from the left eyes were negative throughout, while those taken from the right eyes showed 70 per cent negative.

20 per cent bacillus xerosis in pure culture and 10 per cent micrococcus albus.

Among the Europeans, bacillus xerosis was found to be presence of bacillus xerosis in each eye, but not in the same patient. In 10 per cent of this class of patients the bacillus xerosis was found to be associated with an unidentified biscuit-shaped diplococcus.

All of these cultures were grown on Loeffler's blood serum culture media.

These are the only cases of this disease with keratitis occurring in Ancon Hospital since the American occupation. I am of the opinion that this organism is the causative factor of keratomalacia in adults, together with the conjunctival manifestations of the disease. One is struck with the age of the patients, also the fact that it was unilateral in all three cases, the other eye in no way being affected. The yellow fatty patches were noted from time to time in case No. 1, but they were by no means constantly present. No dry areas were found on the conjunctiva. Another striking feature in these cases is that in the beginning of the condition, instead of the conjunctival sac being dry and tearless there was a profuse lachrimation. Whether the dry patches occurred on the conjunctiva prior to admission to the hospital and prior to the corneal involvement is more than I know. All three of my cases had profuse lachrimation which persisted in the first case for at least six months, and in the other two cases until the progress of the ulcer had become arrested. I hold that the stimulation of the lacrimal gland is due to the effect of the ulceration upon the nerve endings in the cornea; and, after this ceases, either by the process of limitation or by response to treatment, the profuse lachrimation subsides.

A number of authorities, viz: Colmaitti¹ and Leber,² hold that the bacillus xerosis is the specific organism in the causation of this most obstinate and destructive ocular disease. Weeks³ holds that the system must be in a receptive condition to permit the development of this disease in both adults and children. It is, in children, almost always followed by fatal termination in from two to six months after the onset of the disease, death being due to the underlying dyscrasia.

The bacillus xerosis has been found at post-mortems in the liver, spleen and pancreas of children dying with keratomalacia. None of the cases here reported gave any symptoms of night blindness. All my cases occurred among laborers exposed to

all kinds of dust and dirt. While they gave no definite history of any traumatic injury to the eye, I feel that it is reasonable to assume that the corneas were abraded by cinders and other fine particles getting into the eye and breaking the epithelial coat of the cornea, thereby permitting the entrance of the organism. I do not believe that the constitutional condition of the patient is directly responsible for this disease any more than it is in any infectious disease which oft times gains headway by means of lowered resistance. I do feel, however, that it is necessary to build up the general health as much as possible, with a view to controlling the ulcerative process and that cases Nos. 2 and 3 bear me out in drawing this conclusion. I have used urotropin in two cases, but I am not sure as to its therapeutic effects. I gave it in case No. 2 for its effect upon a sero-purulent hypopyon in the anterior chamber, hoping that it might arrest the further development of any infectious process that might there exist. Not being sure of its exact therapeutic effect in this case, I employed it in case No. 3, but it was given along with tonics and a full diet with extras, and as this case made a complete recovery. I do not hesitate to recommend it as a therapeutic adjunct to the routine treatment of this disease.

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BLOOD CONDITION IN SYMPATHETIC OPHTHALMIA.

BY HARRY S. GRADLE, M. D.

CHICAGO.

In the *British Medical Journal* of June 17, 1911, appeared an article by C. Price Jones of Guy's Hospital and S. H. Browning of Moorfields on "Blood Findings in Sympathetic Ophthalmia." In it reference was made to an address by Dr. Ormonde before the Ophthalmological Section of the British Medical Association of July 10, 1910, wherein he described the blood picture of three cases of sympathetic ophthalmia with an increase of the large mononuclears. The study of nine cases that Price Jones and Browning reported is a continuation of the

work started by Ormonde. They found a constant large increase in the large mononuclears and a variable, slight increase in the lymphocytes, the increase in the total number of mononuclears varying from 68 to 488 per cent. As this blood picture closely resembles that found in protozoal infections, they made a Wasserman test in six cases and it was negative in all instances. Moreover, acting on this basis salvarsan was used in two cases, followed by a prompt decrease in the mononuclear count. This latter branch of the work will be reported later in fuller detail.

In May, 1910, the advance program of the Heidelberg Ophthalmological Society for the August meeting was published and it contained the title of the article that I read there, "The Diagnostic Value of Lymphocytosis in cases of Sympathetic Ophthalmia." Herein I described the blood picture found in sympathetic ophthalmia and in cases of perforating injury of the eye which had to be enucleated because of danger of sympathetic irritation. In such cases there was a large increase in the lymphocytes and a slight increase in the large mononuclears. This is exactly the reverse of the condition as Ormonde apparently found it, but in reality, the two pictures are the same, because the differential diagnosis between a large mononuclear and a lymphocyte is more a personal equation than anything else. In consequence of this, in a later paper, I maintained that the mononucleosis is the deciding factor as a diagnostic measure.

At the annual meeting of the Upper Peninsula Medical Society, held in Escanaba, Michigan, Dr. Calvin R. Elwood, of Menominee, was elected secretary and Dr. A. W. Hornbogen of Marquette was made vice-president.

At the moment the medical profession is interested in spleen substance, which, according to reports, has been used with success in tuberculosis, as well as malaria, and has been recommended in anemia. Desiccated spleen is supplied by Armour and Company, of Chicago, and comes as a light gray powder, which is practically odorless and with little taste.

REPORTS OF SOCIETIES.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING OPHTHALMIC SECTION, HELD AT BIRMINGHAM,
JULY 26TH, 27TH AND 28TH.

HENRY EALES, M. R. C. S., PRESIDENT IN THE CHAIR.

Discussion on the Operative Treatment of Glaucoma.

Mr. Priesley Smith opened the discussion with the question: Ought we to adhere to the time-honoured iridectomy of von Graefe in glaucoma, or should we adopt one or other of the substitutes lately introduced? If the latter, which was it to be? Or ought we to employ sometimes one method, sometimes another, according to the type and stage of the glaucoma? By means of the lantern he demonstrated the conditions which confronted the operator, the relation of the limbus, the operator's landmark, to the hidden parts beneath it, and the uncertainties which beset the placing of the incision. Success after a glaucoma operation was sometimes due to restoration of normal filtration; more frequently to the establishment of abnormal filtration—to a filtering scar. The principle was not new. Many had maintained it, and aimed at making filtration scars. Pre-eminent among those who had devised sure and safe methods were Herbert, Lagrange, Elliott and Fergus. A definite and highly important advance, especially in the treatment of chronic glaucoma, had been made. He asked the experience of the members on certain points; those relating to acute glaucoma, absolute glaucoma, and the advantage of an auxiliary scleral puncture.

Major R. H. Elliott, I. M. S., read a paper entitled "Observations on Trephining the Sclera." The simple trephining operation which he advocated had now been performed in 408 cases in Madras. By this means they established a direct entry into the anterior chamber with the least possible disturbance to the iris and surrounding tissues. He was in the habit of turning forward a large conjunctival flap, and continuing the dissection so as to split the cornea for the depth of one millimetre; then the trephine was used to cut out a small disc, half cornea, and half sclera, from the margin of the limbus. In his experience a trephine 2 mm. in diameter was the best. Care must be taken not to buttonhole the conjunctival flap. As regards the risks of the operation, the disc might fall into the anterior chamber

if too much force were used. In his experience that accident did not matter, and it was unwise to seek to remove the lost disc. In 5 per cent of his cases there had been escape of vitreous. Sixteen of them were in desperately bad eyes, where every risk was intensified. In a large number of cases iridectomy had been done conjointly with the trephining, in nearly 50 per cent. In some cases this procedure had been followed because the iris tended to advance into the hole, but that was not always so. For secondary prolapse, iridectomy had been done in seven cases. He was disposed to perform iridectomy in most cases merely as a mechanical safeguard, and not as enhancing the effects of the operation. He then showed, by means of diagrams, the different effects of the trephining, according to the state of the angle of the anterior chamber and the root of the iris. In conclusion, he maintained that, granting the necessity for removing a piece of the sclera to establish filtration, or filtering scars, trephining was the simplest and best operation.

Mr. Thomson Henderson said that their practice must be based on a rational physiology. The success of iridectomy as a means of relieving tension was established; but it was an empirical procedure, and it remained for them to put it upon a rational basis. That could only be done by an investigation of the circulatory conditions of the eye, such as he had indicated in his experiments and the deductions therefrom, and the experiments upon cerebral and ocular circulation by Dr. Leonard Hill. The key to the mystery was the fact that intra venous and intraocular venous pressure were always essentially the same.

Mr. H. H. Herbert, Nottingham, discussing the appearance of scars after iridectomy for glaucoma, said that only those scars which were absolutely invisible could with safety be asserted as solidly united. It was possible in almost all other scars to show that over them there was an abnormal conjunctival oedema, and that there was filtration from the eye through the scar into the subconjunctival tissue. He showed a section, kindly lent him by Mr. Affleck Greaves, in which the scar was partly filled with loose fibro-cellular tissue, and in which serial sections had proved the absence of a fistula, yet in that eye there had been oedema over the scar. It was confessedly easy to obtain a reduction of tension in an eye by sclerotomy, but the defect of that procedure was the want of control in the degree of reduction, eyes tended to get soft. The question was how could they best secure control over filtration, by sclerotomy or sclerectomy? He

thought by sclerotomy. As yet the method was in its infancy, and its possibilities had been, as yet, imperfectly explored. For instance, numerous modifications of the small flap operation at once suggested themselves, should variation prove necessary. In hard blind eyes, sclerotomy at present often proved efficient only in removing pain, the tension being imperfectly reduced, at least for a time. And there were a few secondary glaucomas in which the need of freer filtration was obvious.

Dr. J. Gray Clegg, Manchester, read a paper entitled "Observations on Trephining the Sclera." In recent years he had done several operations other than iridectomy for chronic and acute glaucoma, such as Gayet's, Herbert's wedge, and Lagrange's operations, but with only moderate success. The reaction from these operations was rather violent, and there was some uncertainty as to the size of the sclerotomy in the last-named operation. Succeeding these operations, he had performed trephining twenty-three times, with the most satisfactory results, and he considered the operation suitable for all types of primary glaucoma. The improvement obtained in visual acuity was striking; such a change as the restoration of 6/6 after it had been reduced to fingers, was not rare. As to risks of the operation, he had found few. There had been no escape of vitreous. Pro-lapse of the iris at the moment of trephining had occurred four times, necessitating iridectomy. There had been secondary bulging of the iris once, and of the ciliary body twice. He gave detailed tables of his cases. In one case of sympathetic ophthalmitis with persistent tension, trephining was very successful, and gave rise to no undue reaction.

Mr. Devereux Marshall, London, said he was surprised to hear Mr. Priestley Smith say that malignant glaucoma did not occur after a preliminary scleral puncture. In acute cases his inclination was distinctly in favour of iridectomy, which had stood the test of time in a way which no other had, while he was quite satisfied with its results. He had performed Herbert's operation many times in chronic glaucoma, and occasionally in subacute cases, but we had yet to wait to ascertain the permanency of the result. He had not performed the operation of trephining, and so could not speak from experience as to its merits.

Mr. Richardson Cross, Bristol, said that without question physiology and pathology must be at the basis of our conception

of treatment. In his view, the work of Weber and that of Priestley Smith had established the primary facts of the importance of the filtration angle; and whilst he congratulated Mr. Thomson Henderson on his work, and hoped he would continue it, as yet he could not say his faith in the older theories was disturbed. In acute glaucoma, there could be no question that iridectomy was the best operation, and that operation was the only treatment. Chronic glaucoma was a different condition; the most perfect iridectomy might fail to relieve the tension permanently. He had always tried to make his incision a long shelving one, commencing, say 2 mm. back from the limbus. In a number of cases of hypophthalmos he had had remarkably successful results by doing Herbert's small flap sclerotomy with Bishop Harman's twin scissors; and he was of opinion that for these cases it was preferable to iridectomy. As a rule, he would continue to do iridectomy in simple and chronic glaucoma, as well as in acute cases; but should tension recur, he would use the sclerotome, preferably Bishop Harman's. He had had good results in primary sclerotomy in cases of hydrophthalmos, and he much preferred it in these cases to iridectomy.

Dr. Adolph Bronner, Bradford, said he had tried various methods of operating for glaucoma. In acute and subacute conditions he performed posterior sclerotomy first, if possible, and then he did iridectomy. If tension recurred, he used the trephine. In chronic cases, he still preferred iridectomy, except in cases of arterio-sclerosis and increased blood pressure in feeble and nervous patients; then he trephined. He showed a modified form of trephine, which he found convenient in use. It had an outer sheath, which steadied the trephine in boring, and prevented its wobbling.

Mr. Bishop Harman, London, wished to consider the merits of these operations from the patient's point of view. Granting, for the sake of argument, equal value in iridectomy, sclerotomy, and sclerectomy, which operation was most commendable from the point of view of the patient's general condition? For acute glaucoma, he believed undoubtedly iridectomy. The condition was severe, and demanded an operation which, even though severe, was undoubtedly reliable. In chronic glaucoma, the case, although serious enough, might not present so formidable an aspect to the patient's mind; the loss of vision might be small, or only occasional, even the field might be but little affected, and

with such cases the prospect of laying open the eyeball, confinement to bed for at least a week, with the certainty that considerable astigmatism would ensue, together formed no attractive prospect. The confinement in bed alone was a serious item in old folk. These considerations had deterred not a few surgeons from advising operation in times past, and favoured the use of myotics by them. Contrast with these risks the simplicity of the procedure in Herbert's operation, the one with which he was familiar, and the advantages became manifest. There need be no pain at the operation, the risks of injury to the eye were the smallest, and he did not hesitate to permit patients to sit up in bed the day after the operation, so that the disturbance of an old person's condition was as little as possible. Lastly, very little, sometimes no, astigmatism was caused by the operation. In the rare event of failure to secure a permanent lowering of tension, it was easy to repeat the operation. Indeed, he proposed this week to do a third operation upon a patient in one of whose eyes the benefit of the previous operations had not been maintained. This case was of interest, for the man's sclerotics were extraordinarily tough and gristly, so that the flap produced had very little pliability. He thought that in such cases the tip of the flap should be excised, as had been suggested by Herbert. The difference of the texture of the sclerotic and its effects upon operative procedure was worth considering.

Mr. W. H. Jessop, London, said that the discussion was one of greatest importance. He considered there were great differences in acute and chronic glaucoma. In acute, the large peripheral iridectomy, preceded, if necessary, by a posterior scleral puncture, was the proper procedure. In chronic glaucoma, iridectomy was frequently of little use, and often even dangerous, and it was in these cases he now performed Herbert's iridectomy, in preference to that of Lagrange. He had no experience of trephining, but intended to try it.

Mr. Charles Wray, Croydon, said that, admitting all that was claimed for the new operations to be true, his early experience of operations in chronic glaucoma left him doubtful of the advantage of operation over the continued use of myotics. He had cases which had maintained their stand for fifteen to thirty years, and that apart from risks such as soft eyes and detached retina.

Mr. Harrison Butler, Coventry, had tried Elliott's opera-

tion, with satisfactory results. He had had difficulty in getting trephines that would cut. So far, Freeland Fergus' had proved the best. He had had difficulty by reason of the disc of tissue falling into the anterior chamber. One point he thought should be called attention to, and that was the grave risk attaching to operations upon eyes in which the periphery of the field approached the fixation spot. Operation might secure a permanent fall of tension, but it was liable to cause loss of macular vision. On the question of the circulation of the eye, it was interesting to notice that a recent German author had brought forward a series of observations upon which he based the theory that there was no intraocular circulation at all. Then there were the observations of Professor Thompson, which indicated that it might be limited to the small pump-like action of the scleral spur.

Mr. Jameson Evans, Birmingham, said he had looked up the hospital notes of the last two or three years' cases of glaucoma. He found nine acute, and three absolute cases, for all of which iridectomy was performed; five subacute and thirty-three chronic cases for which filtration operations were done, half Herbert's wedge, and the other half trephining. His general conclusions were in favour of iridectomy for acute glaucoma, and trephining with or without iridectomy, for chronic cases. Trephining was, in his experience, the easiest operation, and caused the least reaction. It was easy to repeat it, and no disfigurement ensued. He did not think the oedema over the scar a sure proof of the amount of drainage.

Mr. Wilfred Allport, Birmingham, had performed forty operations after the fashion of Herbert's wedge operation, mostly in chronic cases, with excellent results in every case but one. For acute glaucoma, no scleral operation was so satisfactory as scleral puncture followed by iridectomy. Major Elliott said in reply that if looked for, it was as easy as to find pitting of the conjunctiva as pitting of the shins in oedema of the legs. He advocated trephining for acute, as well as for chronic glaucoma. He maintained it was a safe procedure, while iridectomy was not. It was not necessary to perform scleral puncture to make it safe or enable it to be performed, as was the case with other operations. In fact, the harder the eye, the easier the trephining; and there was no risk, with ordinary cases, that the aqueous would escape too rapidly. The occurrence of quiet iritis had been

referred to. It certainly followed trephining, though he doubted if it was true iritis. But it could be prevented by the routine use of atropine on the third day. Iridectomy he held advisable in trephining, but merely for its mechanical effects. As to the discussion between Herbert and himself, it came to this: Herbert considered trephining did too much, whilst he (Elliott) thought sclerotomy did too little. He could confirm Mr. Bishop Harman's observations concerning the differences in the texture of the sclera of patients.

Dr. Gray Clegg considered trephining good and safe for acute glaucoma, and instanced his four successful cases.

Mr. Priestley Smith, in reply, said he had a great admiration for Mr. Thomson Henderson's work, but could not follow him in his conclusion that cerebral and ocular pressures were always the same. Did he mean that when ocular pressure was thrice what it ought to be, the brain was subjected to a similar excess pressure, and that without any symptoms? The problem they had to consider was, how to secure a filtration scar that would be best for the majority of cases. Lagrange, Elliott and Fergus removed pieces of the sclera. Herbert displaced a piece. The apparent test was the production of oedema. The true test was not apparent oedema, nor the tension, nor the visual acuity, but the field of vision as mapped out with the perimeter.

Mr. John Hern, Darlington, said that were he to put himself in the position of the patient, as suggested by Mr. Harman, he would certainly prefer a peripheral wide iridectomy for acute or chronic glaucoma, as against any of the newer scleral operations. With the incision placed well back in the sclera, as had been described by Mr. Cross, this was the best guarantee of success.

Dr. H. MacCallan, Cairo, said the condition of the iris should determine the choice of operation. If the iris was atrophied, then the possibilities of absorption were diminished, so that something else than iridectomy was required.

Mr. Claud Worth, London, said in his view, atrophy of iris was not so important as the possibility of the existence of adhesions of the iris at the filtration angle. Where those existed, iridectomy was almost certain to fail.

Mr. Secker Walker, Leeds, said that for acute glaucoma he believed in iridectomy, but he had no faith in it for chronic glaucoma. He got better results with Lagrange's operation than with

iridectomy, and better still with Herbert's operation, which he now relied upon. The small flap operation he found comparatively easy to do. Quite painless, it gave excellent results, and it could be repeated in case of only partial success.

The president recalled the days when cocaine was unknown, and how on occasions they had to perform iridectomy in acute glaucoma without even a general anaesthetic. Once he operated upon both eyes at a sitting under these conditions.

Discussion on the Aetiology, Diagnosis and Treatment of Concomitant Squint and Heterophoria.

Opened by Mr. Claud Worth, London.

Mr. Worth said that any historical survey would be out of place, but the names of four great workers in this field would be in everyone's mind—Donders, Javal, Priestley Smith and Maddox.

Convergent squint. In a normal eyed person, the two sets of visual impressions received by the two eyes were fused in the brain into one picture. In order that fusion might take place, the direction of the visual axes must correspond. The cerebral faculty of fusion determined the effort of the oculo-motor apparatus to this end. When that faculty was perfect, even gross displacement of the visual axes produced by prisms could be overcome, so a want of balance of the motor apparatus would not cause squint, but heterophoria. If the fusion faculty was temporarily in abeyance, e. g., when one eye was covered, the eyes would deviate. In hypermetropia there was a tendency to excessive convergence during accommodation, but in the interest of binocular vision this was checked. In forcible deviation, as in paralysis of the external rectus, there was persistent diplopia. Contrariwise, in the absence of the fusion faculty there was no reason for accord in the visual axes, and any disturbing factor, hypermetropia, motor defect and mental disturbance caused squint. The controlling factor was referred to the brain. Further than this one could not go.

The onset of squint was most frequent in the second and third year. He thought that some fusion faculty was present and effective until some particular strain, illness or school rendered it insufficient in the face of ocular difficulties. The belief that squint was determined by motor difficulties was negatived by such cases of motor imbalance, even to 15 degrees, continuing

that at least 90 per cent of amblyopia in squinting eyes was acquired. In the rare cases of amblyopia without squint there was usually a high degree of astigmatism in the amblyopic eye, and none in the other eye, and it appeared that the amblyopia arose from the elective use of the good eye. In the treatment of convergent squint, he recognized three aims; the cure of the amblyopia ex anopsia, the removal of the deformity, the securing of binocular vision. The best means for the attainment of the visual results was atropising of the fixing eye only. This was only of use when the squinting eye retained the power of fixation.

2. Occlusion of the fixing eye when the squinting eye had lost the power of fixation. There should be total occlusion of the eye for at least one month. More than that was rarely necessary or useful.

3. The exact correction of errors of refraction. He did not hesitate to do this at as early age as three months, for it was now certain accommodation came into play at a very early age.

4. Operation. As a rule, this should not be attempted until all the other means of rectification had failed, but he endorsed a recommendation made by Priestley Smith many years ago; if in an infant convergence be so great as to render the use of this eye mechanically difficult, tenotomy should be performed at once. The risk of subsequent divergence was less than amblyopia. Simple tenotomy for the rectification of squint he did less and less; he relied now almost entirely upon advancement of one or both external recti. He drew attention to certain points connected with his mode of performing the operation.

Divergent squint. There were two varieties, which had entirely different origin. The first was associated with myopia of high degree, and was produced in consequence of the lack of accommodative effort, increasing the difficulty of maintaining excessive convergence. Since the eyes of school children had been systematically examined, it had become less frequent. The second order he would call neuropathic. It usually dated from infancy; it was occasional, or constant, unilateral or alternating. There might be feeble fusion; more commonly it was absent. Only in the constant unilateral cases was there amblyopia. In others, vision was perfect. Convergence was always defective, and the degree varied from day to day. The subjects of it were

bright and intelligent, but nervous. It was three times more common in females than in males.

Considering heterophoria, he held there was relatively more defect in the relative motor balance of the eyes, but this was kept in check by the fusion faculty. It was the reverse of squint. It was impossible in most cases to demonstrate any particular muscle defect, but the effect of it was manifest in an abnormal tendency to convergence, divergence, or vertical deviation. It was by no means uncommon to find that sufferers from "eye-strain" who had emmetropia in each eye were deficient in motor balance, and to this their trouble was due. Of the varieties of defect, hypermetropia was the most troublesome and the least common. In these last cases of moderate degree the use of prisms was invaluable, but in high degree, advancement of an inferior rectus was preferable.

Mr. H. H. B. Cunningham, Belfast, laid stress upon the hereditary or family nature of squint. He had traced the characteristic in not a few families. Anisometropia, in a more or less marked degree, seemed a particularly effective ocular defect in determining a squint. Consequently, the fusion faculty must be at a special disadvantage in such cases. On the general lines of treatment he was in agreement with Mr. Worth. On the matter of training, whilst he held instruments such as the ophthalmoscope and diaphragm test of the greatest value in children of fair age, something was wanted for very young children. For this purpose, two-colour pictures had been devised which, when looked at through a green and red screen showed which eye was fixing. By these pictures, useful practice could be obtained. He agreed in the superiority of advancement over tenotomy, and in the importance of not including the artery of the muscle within the suture. He gave instances of cases which had improved under treatment.

Mr. R. J. Coulter, Newport, drew attention to those cases in which no error of refraction was found in early life; but later, after the existence of squint for some years, astigmatism appeared. He suggested the abnormal pressure of the muscles in excessive convergence might induce this.

Mr. J. B. Story, Dublin, put the order of procedure in treatment as: (1) correction of error of refraction; (2) occlusion of the fixing eye; (3) advancement to correct deformity and permit of fusion training. As regards aetiology, there were

cases that he felt were not covered by current theories, cases where squint ought to have appeared, but in which there was none. He had never observed any improvement in an amblyopic eye, nor had he obtained complete fusion in any case of cured squint, except in very young children.

Mr. A. W. Ormond, London, called attention to a record by Chiselden in the middle of the eighteenth century concerning the lack of appreciation of a patient at the restoration of his sight by cataract couching. It emphasized the fact that amblyopia did not appear unless vision was interfered with before it was properly established. If it had an amblyopia, it was unlikely to be complete at any rate, and vision was recoverable. If vision was interfered with before it was properly established, amblyopia tended to be marked and irremediable. He considered that every effort should be made to remove the squint by operative measures, then the development of the fusion faculty would do more than an active interference with orthoptic appliances.

Dr. Inglis Pollock, Glasgow, said that in advancement it was necessary to exert particular care to obtain equal stress in the arrangement of the sutures, otherwise distressing hyperphoria might be caused.

Dr. J. O. McReynolds, Texas, had heard it said that American ophthalmologists over-emphasized the importance of muscle anomalies formerly. He thought today's discussion dispelled that idea. Formerly, there had been a large practice of partial tenotomies in the States, but that had fallen into comparative disuse in favour of advancement. In one point their practice differed from that described by Mr. Worth; they did not sever the tendon, but tucked and folded it in.

Mr. Bishop Harman, London, said the point in the paper that particularly interested him was the note concerning "neuropathic divergence." This defect he considered akin to such other cerebral defects as color-blindness, and tone deafness; it was probably referable to an inherent weakness of the fusion faculty. There was great difficulty in treating it, just because the subjects of it never realized that they did squint; the wandering eye promptly returned to its duty when the patient was told of the squint, and they never could see it in the looking glass! What they did not see, they did not trouble about. It was almost always the friends who objected to the squint. In

the "diaphragm test" he had found a most satisfactory means of demonstrating the existence of the squint to these patients; they saw its effect for themselves, and that was the first step in any attempt to improve their condition. Next, it was possible to exercise what little capacity they had for binocular vision, and increase it by the use of the variable patterns of this instrument. He thought he had obtained good results by these means. As regards heterophoria, he believed in the influence these defects had in producing eye-strain, but he thought that this only held good for those people who did near work. A defect that was serious to such a person, did not bother one whose occupation was wholly out of doors. On this account, he was in the habit of correcting these errors in near vision only. He greatly preferred the practice of decentering the lenses worn by the patient to secure prismatic effects, rather than superadding prisms to the lenses. This was more convenient in prescribing, in manufacture and in wearing.

Dr. K. Pischel, San Francisco, spoke of the superior advantages of sutures obtained from the tendons of rat tails in advancement operations.

Major Elliott, I. M. S., said that heterophoria as a cause of asthenopia was much more common in India than it appeared to be in England. Patients complained of its effects in India, and remarked that these disappeared when in England. He agreed with Mr. Harman that it was only necessary to correct the defect for the purposes of near vision.

Professor R. A. Reeves, Toronto, said that asthenopia from heterophoria was common enough in Canada. He found great benefit from the use of systematic exercise with prisms. In advancement for squint there was a real danger of causing hyperphoria by unequal tension of the sutures. To avoid this risk he always stitched the shortened muscle to the old insertion of the muscle, end to end.

Mr. Priestley Smith, Birmingham, asked why Mr. Worth considered it better to advance the muscle to the edge of the cornea, rather than the manner Dr. Reeves had just mentioned. The contrast of the old-time neglect of squint with their present-day careful educative methods was great, and this revolution they owed to the initiation of Javal. Javal once told him that there was hardly any case of squint in which binocular vision and fusion could not be obtained—given time.

Mr. N. H. Pike, Cheltenham, said he had had good results in heterophoria by the use of prism exercises. It was a method not made use of nearly enough. He thought that tenotomy should be done as well as advancement, though often the former would be sufficient.

Mr. Harrison Butler, Coventry, said he wished to thank Mr. Worth for his operation: it had proved most satisfactory in his hands. The difficulty arose from cutting out of sutures from the sclera. He was in the habit of combining tenotomy of the opposing muscle with advancement, but the tenotomy was done as that its effect was temporary, until the advanced muscle was secure.

Dr. Arthur Green, Norwich, asked what amount of improvement could be anticipated from atropising or occluding the fixing eye. Very little, he thought.

Mr. A. Little, Bradford, asked how it was possible as had been advised by Mr. Worth, that the exercise of the squinting eye should be carried out by the surgeon. How many sittings did it require?

Mr. Hugh Thompson, London, said that occlusion of the fixing eye for a long period was a serious handicap in the school life of the child. He had been in the habit of occluding the eye for only half the day, and with apparently good results.

Dr. J. Gray Clegg, Manchester, asked if training was of any use in securing restoration of vision in the squinting eye after the age of 8 or 9 years. He commented on the existence of cyclophoria in patients without any indications of asthenopia. He approved of Kral's pictures for young children.

The President said that to his mind the great change that had come about in the treatment of squint was due to the recognition that the amblyopia was caused by the squint, and was therefore curable or ameliorable, and was not, as formerly held to be, the cause of the squint.

Mr. Claud Worth, in reply, said that as regards operation he did sometimes shorten and reattach a muscle to its old insertion, but in cases of considerable squint, that did not give enough rotation, and it was necessary to advance the muscle to the corneal margin. It enhanced the action of the muscle considerably. He considered there was little risk of causing hyperphoria if the

stitches were inserted parallel to each other, and in line with the old insertion of the muscle. Occlusion of the fixing eye, he agreed, might occasionally be advantageously prolonged beyond four weeks, and at an older age than 7 years; but the willingness of the parents to take the trouble had to be considered, and the risk of disappointment. Where vision was improved, the gain was not great. The most favorable age was from 3 to 6 years. Two was too early to attempt training, and 7 mostly too late. He did not agree with Mr. Ormond that training was most effective if begun after operation; rather he found that operative results were more secure if training of the squinting eye preceded operation. Fusion training should be done by the surgeon. When begun early, perhaps no more than half a dozen sittings were required.

Dr. Thomas Henderson, Nottingham, read a paper on the Comparative Anatomy of the Ciliary Region.

In the human eye the ciliary region extended from the ora serrata to the iris root in a zone of uniform breadth of from 6 to 7 mm. This area was divided into a posterior and comparatively smooth portion, and an anterior plicated region formed by the ciliary processes. In the common farmyard quadrupeds (horse, cow, sheep, pig, cat and dog), this same regular arrangement did not obtain. The ciliary processes were not all the same size, and they were smaller and more numerous towards the nasal side, and the smooth posterior part was absent. In effect, it amounted to the prolongation of the retina forwards on the nasal side, a provision apparently correlated with the necessity for a wide field of vision towards the flank. This bore on the mechanism of accommodation and had to be considered in the light of the author's previous work. His purpose here was to bring forward a hitherto unrecognized feature, and to suggest an explanation of it.

Mr. Bishop Harman asked if Mr. Henderson found any variation of this striking peculiarity in animals, the shape of whose pupils was narrowed vertically, as the cat, or horizontally, as in the horse or goat.

Dr. Henderson replied that there was no difference; both were alike in the advancement of the retina towards the periphery.

Dr. W. B. Inglis Pollock read a paper on the Treatment of

Chronic Dacrocystitis. Pathological examination of excised lacrymal sacs had enabled him to prove that the subadnoid layer was greatly swollen and thrown into folds by a dense cellular infiltration. Such a condition was obviously unsuited to the old treatment of probing, which was likely to accentuate it and produce stricture. The dacrocystitis was secondary to a septic focus, most frequently in the nose, and its cure was best effected by regular and persistent lavage of the sac and duct. In private patients a short course of syringing usually effected cure, but in hospital patients the results were not so satisfactory, probably because the condition was commonly advanced before they were seen. If, after three months lavage, cure was not effected, excision of the sac should be resorted to.

Mr. T. Harrison Butler, Coventry, read a paper describing a new operation for the extirpation of the lacrymal sac. He said it was essentially a modification of Mellers operation. The site of the sac was rendered anaesthetic and anaemic by the injection of codrenine. The primary incision was through the skin only. It took the form of a half circle, with the centre at the canthus. The flap was carefully dissected up, avoiding button-holing or wounding of the veins underlying the nasal side of the incision. The palpebral ligament was then isolated, and the deep fascia split vertically, so as to expose the sac. The sac was freed from its bed with blunt-pointed scissors, and pushed down under the ligament. Then the canaliculi were severed, and the sac drawn down towards the duct, twisted to a cord, and cut off. The operation was bloodless and painless, and no retractors were required, only sutures to hold back the flap and secure the ligament. He had done the operation 70 or 80 times, and was more than pleased with the results.

Mr. Bishop Harman said that in his experience the difficulty of removing the lacrymal sac arose from attempts to see it. In this operation, touch was better than sight. The bed of the sac could be perfectly defined to the sense of touch. One could establish the actual position of the sac by means of a probe passed through the lower canaliculus into the sac itself. This procedure left no room for mistake. That done, he gripped the tissue between the fascia and bone, and removed it bodily. The removed tissue contained the sac and little else. He did not hesitate to cut the palpebral ligament, and had never found any ill effects from that.

Dr. John Hern, Darlington, agreed with Mr. Harman that removing the contents of the lacrymal groove was the best procedure. But he did not favour indiscriminate operation. Most cases could be cured by syringing, preferably with weak iodine solution. For some the use of a silver style and probing was very beneficial. Mr. Claud Worth said the practical abandonment of probing was a great advance; syringing should be the main procedure. Excision was a last resort, and slitting of the canaliculus should almost never be practised.

Dr. Cunningham, Belfast, said enough attention was not directed to the primary case of dacrocystitis, which was commonly in the nose. Recently he had seen a case where cure of ozoena relieved the lacrymal trouble.

Mr. W. Allport, Birmingham, said that, in his experience, it was never necessary to excise the sac unless an intraocular operation were contemplated. His practice was to use silver styles, and their insertion and retention had the most beneficial effect.

Mr. Priestley Smith confirmed this statement of his colleague.

Mr. F. Grainger, Chester, also approved the use of silver styles, and in cases where abscesses had supervened, recommended the use of chloride of zinc paste to the interior of the sac; it destroyed the diseased mucous membrane, and the fistula soon closed.

Mr. A. W. Ormond, London, said styles were elusive things; he had once found three in one patient.

Mr. Jameson Evans, Birmingham, doubted if styles would cure the primary condition; excision secured a permanent result, and relieved the patient of serious risks.

The president said he had tried both styles and excision, and each of those procedures had their uses. He did not find any benefit in hollow styles over the solid ones. He agreed that more attention should be paid to the nasal conditions. When that was done, sac troubles would probably disappear.

Dr. Pollock, in reply, said that excision was rarely necessary in private patients, but it was frequently so in working people, from the cause he had explained.

Mr. Butler, in reply, said that in his operation he aimed at removing the sac alone; the removal of a lump of tissue was not good surgery.

Professor J. Berry Haycraft described an instrument he had introduced for the purpose of mapping out the colour-blind margin of the blind spot. The paper had previously been published in the *Journal of Physiology*, Vol. 40, No. 6, August 15th, 1910, to which reference may be made. Remarks on the paper were made by Mr. Tomlinson, who showed and explained his scotomograph, which was commented upon by Mr. Harrison Butler.

Miss Amy Shepherd, M. B., London, read a paper on "Extraction of the Lens in Its Capsule." She considered that this was the operation of election in the great majority of cases of operable cataract, excepting those of children and young people and a few hypermature senile ones. She said it was indispensable, in that it was the only safe and effective operation in immature cases. The paper was mainly based on personal observation of more than 650 such extractions, over 260 of which had been done by herself, under Colonel Smith's kind supervision, at Amritsar, Punjab, earlier in the year.

After carefully preparing the patient and the instruments, an almost radial incision was made through the cornea. Iridectomy was done in nearly all cases, solely to guard against prolapse. She gave full details of the operation, and showed drawings of the various stages. The eyes were left tied up for ten days, when the patients were allowed to go home. In skilled hands, vitreous escaped in about 5 per cent of the cases. The various complications at and following the operation were discussed. Undoubtedly the operation was more complicated, and necessitated the presence of a skilled assistant. There was greater liability to the escape of vitreous, though that mattered but little and some said there was a greater liability to simple prolapse of the iris. Its advantages were: Much less liability to iridocyclitis; less liability to sepsis due to the absence of cortical matter and capsule and less liability to tension due to capsule in the wound. The visual results were better than after the old operation. There was no after-cataract involving a second operation, and it was a thoroughly effective operation for immature cases.

Mr. Gray Clegg, Manchester, had had a small experience in doing the operation, and from his results he felt warranted in further practising it.

Major Elliott, I. M. S., Madras, did not favour the opera-

tion. He considered that prolapse of the iris and vitreous was more common in the intra-capsular operation. He thought that four suppurations in 650 cases was enormous, and felt that the capsule and cortex remaining in the eye constituted no danger at all, so long as it was not in the wound. More statistics were required, and he urged all those who could do so to bring forward their results. He did not think that a small iridectomy did any harm, and the visual results were almost the same with and without it.

Mr. A. W. Ormond, London, considered that no operation which necessitated the doing of an iridectomy could be regarded as the operation of election; he thought the advantages of an intact pupil were enormous.

Dr. R. A. Reeve, Toronto, was greatly in favour of McKeown's method of washing out the cortex, and this method greatly facilitated the operation in immature cases, and if resorted to habitually, would greatly lessen the necessity of the intracapsular operation.

Captain A. E. J. Lister, I. M. S., said that his series of 98 cases, in which vitreous was lost, and in which no harm resulted, was not sufficient to warrant the statement that no subsequent bad results followed. More cases would have to be investigated. He considered that the eye which was free of all cortex and capsule was in an infinitely better position than the one in which both were present, and the after results would be different also. An eye, however, which had its vitreous exposed was far more liable to suppuration than was one in which the posterior capsule was intact.

Dr. John O. McReynolds, Texas, said that the intra-capsular operation had produced a very favourable impression in America, and those who had studied the operation most carefully were the most enthusiastic in its favour. Others, such as Savage, of Nashville, had modified the operation as the result of their own experience.

Colonel Smith, I. M. S., Amritsar, thanked Dr. Shepherd for coming to the Punjab to see for herself his methods. His own experience as to loss of vitreous fully confirmed Captain Lister's investigations. He answered a good deal of criticism of his methods by others, and said that there was no difficulty in following up cases in the Punjab, and he hoped in a few years to

be able to give the after results in several thousands of cases; but the difficulties were great. The great advantage of his operation was that it was complete and not partial, for the whole of the opaque matter was removed, and this was the cause of the absence of iritis in his cases. If the capsule were adherent, he looked upon needling as a very serious operation indeed, and complications were frequent. He strongly condemned the early needling of the capsule before the eye was quiet, as a most unsurgical proceeding. A violent irido-cyclitis was liable to be the result, and in a case he had seen which was needled on the seventh day, the eye was lost from this cause. He thought the capsule ought either to be dealt with at the time of the extraction, or else not until a month after all signs of irritation had disappeared. The great disadvantage of the intra-capsular operation was, that it was the most highly technical operation in surgery, and few surgeons had sufficient material to become proficient at it.

Mr. A. F. MacCallan, Cairo, read a paper on the Egyptian Ophthalmic Hospitals. He stated that considerable progress had been made during the last year. Clinical work was in active progress in two built hospitals at Tanta and Assiout, and three new permanent hospitals were in course of construction at Mansoura, Beni Suef and Zagazig; and money had been collected for others. Thirty thousand pounds had been obtained for capital expenditure. About 97 per cent of the fallahin had some form of eye disease, chiefly trachoma, and it was impossible to treat anything like all the cases. Further developments should be on the lines of the traveling hospitals, as originally founded by Sir Ernest Cassel. The permanent hospitals would act as a base, to which the more severe cases could be sent. All the posts, except one, in the ophthalmic staff were filled by Mr. MacCallan's own pupils. In 1910, at the three hospitals, 14,342 patients were chosen for treatment, out of 25,514 would-be patients. It was rarely possible on any day to accept all the patients who applied for treatment. The average number seen each day at each hospital was 228. The highest percentage of total blindness in Egypt was at Asswan and Sokay, where it amounted to 25 per cent. Numerous tables and figures were given showing the diseases treated and the causes of blindness.

Captain A. E. J. Lister, I. M. S., thought that trachoma was

of importance if a cataract were to be extracted in its capsule. It should be treated first.

Mr. Harrison Butler, Coventry, said that his experience in Jerusalem was that a very large proportion of cases operated upon for cataract were trachomatous, and septic complications were no more frequent than in Europe. Pure trachoma, uncomplicated by secondary septic troubles, had no influence on the result.

Colonel H. Smith, I. M. S., Amritsar, thought that severe trachoma was a bar to operating for cataract; but slight trachoma had no more serious result than that the eye was liable to remain red and angry-looking for a longer time than usual.

Dr. Leonard J. C. Mitchell, Melbourne, read a paper on the use of carbon dioxide snow in ophthalmic work. He had treated many cases with this material while house-surgeon at Moorfields, and considered that it was of real value as a curative agent, insofar that it brought about inflammatory reaction easily and safely, and was therefore of practical use in every day ophthalmic treatment. He thought that expensive and cumbersome apparatus was quite unnecessary. All that was required was a chamois leather bag, tied closely round the nipple of a gas cylinder, with the nipple at the lowest part of the cylinder. The snow collected was rammed hard into a suitable shape, and could then be held in cotton wool by the surgeon, and applied to the desired part. For the everted lids, 10 to 15 seconds sufficed, and the lid should be allowed to thaw before it was replaced. A little cocaine ointment was desirable afterwards, but not before the application. In rodent ulcers the raised edges should be attacked rather than the base of the ulcer. In trachoma a violent vascular reaction set in, and this caused the good results. An application once in ten days with a hard pencil and a pressure of about six ounces from ten to fifteen seconds was sufficient. No other drastic treatment was adopted in thirty-seven cases, and within six months no recurrence had taken place in seven, and in others, relapses could always be controlled by a further application. Pannus and ulcers cleared in a remarkable manner. In naevi of the skin the results were excellent. Three applications cured a long-standing case of spring catarrh, and rodent ulcers were most successfully treated. The cost was extremely low, and the apparatus was of the simplest. He considered that it cured rodent ulcers when the bone was

not involved. It relieved all cases of trachoma, and cured about 20 per cent. It cured naevi of all types.

Mr. Devereux Marshall, London, said that he felt sure we had in this reagent a very potent remedy. He congratulated Dr. Mitchell on the good results he had reported, and felt sure that after listening to the paper many would be encouraged to try it for themselves.

Mr. Bishop Harman, London, read a criticism on the blind and the census of 1911. In previous years there was a column for "blind," and this year for "totally blind;" and the addition of this adjective had destroyed one of the most useful of the census returns, both by unduly limiting the inquiry made, and by presenting a conundrum of no little difficulty to those who had to fill up the form. Many people who would not consider themselves blind, who could just find their way about alone, might, for educational purposes and for purposes of ordinary employment be described as blind. He had endeavoured to get the authorities to realise this, but apparently without success. He analysed the answers given in 312 cases he had been able to ascertain, and he found that 120 had disregarded the "totally blind" and had entered them up of their own initiative as "partially blind." This showed the great desirability for a differentiation of the census designation of the blind. Many partially blind, or blind for all practical purposes were never enumerated at all, so that the results would be most misleading, and quite valueless. Tables showing the real state of the vision in the cases he was able to trace were then given. He suggested that a sub-committee should be appointed by the British Medical Association to investigate the matter, and make such representations to the proper authorities as may be deemed fit.

Mr. C. W. Hutt, assistant M. O. H., Warrington, thought the subject a very important one, and that great pains should be taken to ensure accurate results. He thought that explicit directions should be given to schoolmasters and parents as to what was required of them.

Mr. Bishop Harman, London, described a new photometer for the use of school doctors. This was a convenient form of the old grease spot photometer, which could be used to investigate the light of class rooms, etc. It was made by Messrs. F. Davidson & Co., 29 Great Portland street, W., and its cost was not great.

MEETING OF THE OPHTHALMIC SECTION, ST.
LOUIS MEDICAL SOCIETY

MEETING OF JUNE 7, 1911.

Dr. W. H. Luedde Presented a Case of Iridodialysis Showing
Straight Lens Margin in the Sector in Which the Zonula
Fibers Were Ruptured.

Victor T. V. C., aged 15, was brought to me Feb. 28, 1911, about two hours after the right eye had been struck by a bullet from an air rifle. There was a superficial abrasion of the right cornea and an iridodialysis on the temporal side. Under treatment the inflammatory symptoms gradually subsided. There still remains a localized opacity of the lens which is probably posterior and sub-capsular. Vision in that eye is equal to 16/30 with a minus 5/10 spherical and accommodation is about equal to 31/2 D. The left eye vision is normal, the vision is 16/12 +; accommodation is 6 D +.

The interesting feature in this case is that since the secondary pupil has become clear a *straight lens margin* is seen to extend along the temporal side joining the rounded equatorial portion with an obtuse angle above and below. In this sector of the lens the zonula fibers have been ruptured and this retraction of the lens substance has taken place. While having the patient change from distance to close vision with the other eye, I have watched very carefully for any change in the position of this lens margin which is clearly observable through the secondary pupil. I have not been able to make out a definite change in the position of the lens margin, even though the eye retains 3.5 D. of accommodation, nor could I notice any regular constant change in the angles at which this straight border joins that larger portion of the equator of the lens where the zonula seems intact. This suggests, though it is far from proven, that the lens in state of rest is under a degree of tension from the zonula fibers, that accommodation in this eye, which is only half of that in the other sound eye, is accomplished without marked change in the position of the lens margin. This further suggests that the mechanism of accommodation is probably not what it is supposed to be by the Helmholtz theory. According to this theory there should be a marked retraction of the equator to accompany the thickening in the polar direction of the central or papillary portion of the lens during accommodation.

Complete Reduction of a Traumatic Iris Prolapse with Eserin—Recovery and Perfect Vision.—Dr. W. H. Luedde.

Eserin has long been in use for the prevention of prolapse of the iris in certain operative cases and in certain corneal ulcers which threatened perforation.

Of its use to reduce a prolapse that has already occurred, as in this case after an accidental injury, there seems to be no record. The following case becomes, therefore, sufficiently unusual to be interesting.

Mr. T. L., aged 34, a glazier, consulted me April 21, 1911, stating that an hour and a half before, his right eye was struck with a fragment of glass from a broken window pane which he was replacing. The wound had received no attention. The physician who first saw him had immediately referred him to my office when he noticed the pupil was distorted. Examination showed a small three lipped incised wound, each branch of which was about $1\frac{1}{2}$ to 2 m. m. long, at the limbus of the lower temporal quadrant. Through this wound the iris was protruding, forming a cystoid mass about the size of a hemp seed.

After washing out the conjunctival sac with boric acid solution, removing a few particles of dust, I instilled a 5 per cent solution of cocaine and began to prepare my instruments for replacement, or if necessary, abscission of the prolapsed iris. After a few moments when I looked at the eye, intending to repeat the anesthetic, I found that the prolapse had grown the size of a small pea, and that the pupil, which at first had been drawn downward and outward, was still further drawn in the same direction. Therefore, I did not instill the cocaine but substituted holocaine and followed it immediately with eserin solution (in oil 1/240). I repeated the instillation of the holocaine several times, noticing after several minutes a lessening of the amount of prolapsed iris in the wound.

By the time I had the instruments ready and the patient's face prepared to proceed with the operating measures, the entire mass of the iris had been drawn into the eye and the pupil had become round and small under the influence of the miotic. I introduced the spatula into the wound to be sure that appearances were not deceptive, otherwise no operative treatment was attempted. Both eyes were bandaged. The patient was kept prone and removed by ambulance to the St. Luke's hospital. He was kept absolutely quiet at the hospital for two days and remained entirely comfortable.

Three days later the pupil still was perfectly round, responded to light freely, there being no signs of adhesions.

On the fourth day he developed pain in the right eye, probably due to a beginning iritis. The wound in the cornea had entirely healed, the anterior chamber being restored the first day. I now used the homatropin solution 1/60, getting some relief from pain and producing fair and regular dilatation. There being no disturbance at the wound, I followed this by the use of atropin and cocaine (oil solution) with considerable relief from the pain.

On account of the pain it became necessary to use the atropin at frequent intervals for several days. The mydriatic was continued until the 17th day. The eye since then has remained perfectly quiet and free from pain except an occasional slight photophobia. The patient has gone to work without experiencing any discomfort. Vision in each eye is 16/10. He has H. M. 0.5.

When I last saw him I noticed a slight retraction of the pupil downwards and outwards, which I am inclined to attribute to cicatricial contraction along the line of the injured radial fibers.

The pigment border at the pupillary margin from this sector of the iris and a few pigment spots in the scar may be the remnants of this loss. So far they have occasioned no disturbance.

It has frequently been urged that these cases should be seen early. The report of such a case as this furnished additional ground for insisting that the physician who first sees a case of accidental injury to the eye should promptly refer those cases in which he does not feel certain of his ability to handle them properly. The credit for this excellent result belongs primarily to the physician who impressed it upon the patient that he must have special care at once. While the result was gratifying, I had not expected to get such prompt effect from the eserine. It was used to counteract the bad effect of the cocaine. Cocaine solution is generally recommended in text-books for use in the attempt at reduction of hernia of the iris. Evidently it should not be used thus indiscriminately as it may render the operation more difficult or even impossible.

After the reading of Dr. Semple's paper on the Green-Ewing Entropion Operation (which will appear in a later issue) Dr. Luedde remarked:

As showing the success of the Green-Ewing operation where radical operations have failed, the following case is of interest:

Mrs. A. W., aged 63, consulted me Aug. 11, 1907. Patient had "sore eyes" as a young girl. Was operated on for entropion by Dr. P., St. Louis, forty-five years ago by the complete removal of lid margin and cilia of both upper lids. Marked erosion and roughness of the superficial epithelium of the cornea with vascularization was present, causing considerable photophobia and low vision. O. D. 15/75, O. S. 15/48 with correction. Treated lids for a time with some relief, but erosion of epithelium recurred, caused by the blepharo-spasm and the fine cutaneous hair of the upper surface of the lid, which had been inverted by the prolonged cicatricial contraction of the conjunctiva. On Sept. 5, 1907, an external canthotomy O. S. was done with some relief. The patient refused any more extensive operations on the lids. Oct. 8, 1908, external canthotomy was done on O. D. Feb. 5, 1909, canthotomy repeated O. S. February, 1909, canthotomy repeated O. D. Each time with temporary relief, but no lasting benefit. Aug. 13, 1909, deep central erosion of the cornea. Insisted that the Green-Ewing operation on left upper lid be done. The result was so satisfactory patient returned Nov. 2, 1909, for the same operation on the right lid. Since then no further disturbance.

J. G. CALHOUN,
Section Editor.

BOOK NOTICES.

A new Pocket Atlas and Text Book of the Fundus Oculi has been written by G. Lindsay Johnson, of London, England. The drawings are by Arthur W. Head, who is well known from his drawings for Johnson's "The Mammalian Eye" and Frost's "Atlas of the Fundus Oculi." A note and drawing book is bound with the Atlas, making a convenient way to record unusual cases and a ready reference in studying them. Dr. Casey Wood, of Chicago, has written the introduction to a special American edition of this book, which will soon be published.

Published by Adlard and Son, Bartholomew Press, Bartholomew Close, London. Price, 10-6 net.

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. Harry Friedenwald, Baltimore, has returned from Europe.

Dr. Robert von der Heydt, of Chicago, has returned from abroad.

Dr. W. Likely Simpson, of Memphis, Tenn., has gone to Vienna for a year of post-graduate work in Eye, Ear, Nose and Throat.

Dr. and Mrs. Edward Jackson, of Denver, spent the summer in England.

Dr. F. C. Hanisch, of Chicago, sailed for Europe August the twenty-second.

Drs. Howard Hansell, Harry Shoemaker and S. Lewis Zeigler, of Philadelphia, have returned from Europe.

Dr. H. Bert Ellis, of Los Angeles, has been made a member of the Permanent Quarters Committee of the Los Angeles Medical Association.

Dr. John H. Korff, who was formerly a specialist in diseases of the Eye and Ear in New York, died August the sixteenth, aged sixty-seven.

Drs. Edward Hornback and Ulysses S. Smith were recently elected consulting Oculists and Aurists to the Levering Hospital, Hannibal, Mo.

Among recent visitors to the Chicago Clinics, were: Drs. Lewis A. Bize, of Tampa, Florida; R. B. Boucher, of Van Couver, B. C., and Dr. A. W. Hornbogen, of Marquette, Mich.

The twenty-fifth annual meeting of The American Academy of Ophthalmology, was held in Omaha, Nebraska, on September the seventh. Dr. Donald Macrae, of Council Bluffs, Iowa, presided.

Dr. Flavel B. Tiffany has been appointed to the staff of the Kansas City General Hospital. With him in his department there will be Drs. Andrew McAllester and Jas. Liechtenberg.

Dr. Melville Black, of Denver, was recently re-elected secretary of the Colorado State Medical Society. Dr. Black was also made a member of the society's Publicity Committee, the other member of which is Dr. Edward Jackson, of Denver.

The April, 1912 topic of the Public Health Department of the General Federation of Women's Clubs will be "Conservation of Vision and Prevention of Blindness."

A Bulletin issued by the Bureau of Manufactures, Department of Commerce and Labor, states that while German makers of optical glass and lenses are unsurpassed, the mountings, studs, guards, frames, etc., for eye glasses and spectacles are no where made to compare with the American makes.

The Indiana State Medical Association, at its annual meeting, authorized the creation of a section to be devoted to the Eye, Ear, Nose and Throat. Dr. George F. Keiper, of La Fayette, was elected first vice-president of the Association and will act as president of the special section.

The Minnesota Academy of Ophthalmology and Oto-Laryngology held its annual meeting at the Hotel Radisson, Minneapolis, on the evening of Friday, October 13th. There were about sixty members and guests present. The president, Dr. Howard McI. Morton, and the secretary, Dr. Elmer Hiram Parker, were assiduous in their efforts to make the meeting the success it was. Dr. Casey Wood of Chicago gave an address on "Some Lessons From the Life and Labors of Helmholtz." The orator of the evening was elected the first honorary member of the Academy.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)	J. R. Hoffman (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)	W. Woodruff (E. E. N. T.)	A. G. Wipperrn (E.E.N.T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 810 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honore Streets. Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
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THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XX

CHICAGO, NOVEMBER, 1911

No. 11, New Series

ORIGINAL ARTICLES.

ON THE "SMALL FLAP" SCLEROTOMY.

LIEUT.-COL. H. HERBERT, I. M. S.

CASTLE GROVE, NOTTINGHAM, ENGLAND. (ILLUSTRATED.)

In May, 1910, before the Ophthalmological Society of the United Kingdom, I reported upon twenty-two "small flap" operations for glaucoma, six of which had been under observation for two years. The earlier operations had been performed with a very narrow tapering Graefe knife (Fig. 1), either in the lower outer or upper outer quadrant of the eye. After sliding the conjunctiva on the point of the knife, a 2 m. m. scleral incision was made parallel with the corneal circumference and 1.5 m. m. from it (Fig. 2a), entering the anterior chamber close



Fig. 1

to its angle. At the two ends of this small section the edge of the knife was turned forwards, and incisions made with slow sawing movements to the corneal margin (Fig. 2b). These two incisions formed the sides of the small flap, the primary incision the end of the flap, and the whole was subconjunctival, the conjunctival puncture remaining small, about 4 m. m. from the limbus (Fig. 2c). The immediate outflow of aqueous produced considerable temporary conjunctival œdema. Before the operation the pupil was contracted, so far as possible, by eserine; and usually one or more instillations of adrenalin were made in addition to cocaine, according to the degree of glaucomatous congestion of the eye. Various modifications have been introduced into the technique, with the effect possibly of making the small operation easier. It cannot, however, be said that the result of the operation has been made more certain. On the contrary, the average results of the later operations have seemed, perhaps, somewhat poorer than before.

Two knives are now commonly used in place of the narrow Graefe—a keratome for the primary incision, and a short, blunt pointed, narrow blade for the lateral cuts. This change was made primarily in order that the flap might be placed above the cornea instead of at the outer side. Bent instruments were consequently required (Figs. 3 and 4). The very small flaps first made were found insufficient rapidly to reduce the tension of

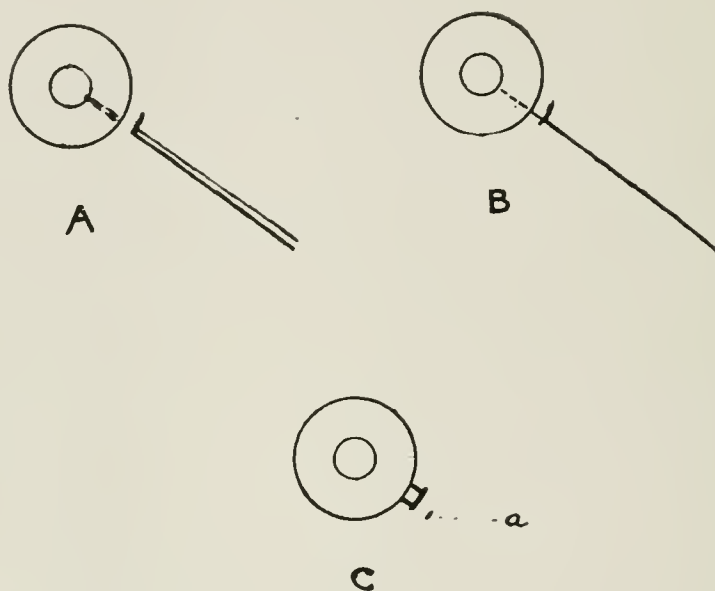


Fig. 2

(a—conjunctival puncture.)

very hard blind eyes. And it was thought that wider flaps, placed above the cornea (Fig. 5) on account of risk of prolapse of iris, might act better. This question of wider flaps has not, however, been fully worked out, because of the risks inseparable from large incisions in glaucomatous eyes, unless preceded by Priestley Smith's posterior scleral puncture. In Nottingham we do not now use a knife (bent broad needle) wider than 3.5 m. m. (Fig. 3). The keratome and blunt-pointed, narrow knife (generally Lang's synechia knife) have continued in use for the outer side of the eye, because of the general feeling against working in an emptied anterior chamber with a sharp-pointed blade.

In using the keratome its point is placed upon the eyeball four or more millimetres away from the cornea, and the movable conjunctiva displaced with it towards the cornea, the position of large blood-vessels being avoided. In operating at the

outer side, the sclerotic is entered $2-2\frac{1}{2}$ m. m. from the corneal border. In operating above, the distance from the conjunctival limbus at which the sclerotic is entered may be increased to 3 m. m. or more if thought desirable in the frequent cases in which the conjunctiva obviously overlaps the corneal margin more above than at the sides.

In eyes with more or less shallowed exterior chamber, i. e., ordinarily in primary glaucoma, the point in puncturing the sclerotic is directed to enter the chamber immediately in front



Fig. 3



Fig. 4

Sym's iridectomy knife reduced in size.

of the iris, and the onward movement is slow. The flap is thus made as long as practicable, measured at the inner surface of the cornea (Fig. 6). But it is not easy always to hit off the exact level of entry into the chamber correctly. One frequently finds that the knife engages in the base of the iris, detaching it. This is satisfactory evidence that the puncture has been made at least deep enough, and in some cases a small irido-dialysis may be useful, serving instead of a peripheral buttonhole iridectomy. Evidence of pain experienced by the patient often indicates that the point is penetrating uveal tissue before it becomes visible in the angle of the chamber. It is important to locate the point of the knife as early as possible, in order to correct possible errors. A side-to-side or forward and backward rocking of the blade may enable one to detect the point hidden by iris. The blade may have to be withdrawn a little to disengage it from the iris, and passed on again closer to the cornea, in order to avoid making rather a large irido-dialysis.

If, on the other hand, the knife-point be found entering the chamber somewhat superficially, this can usually be corrected by partial withdrawal of the knife, without much loss of aqueous.

The narrow knife for the side cuts is introduced on the flat, well into the chamber but not usually as far as the pupillary margin (Fig. 5b). It is turned forward at one end of the primary incision, thus emptying the chamber, unless it is already

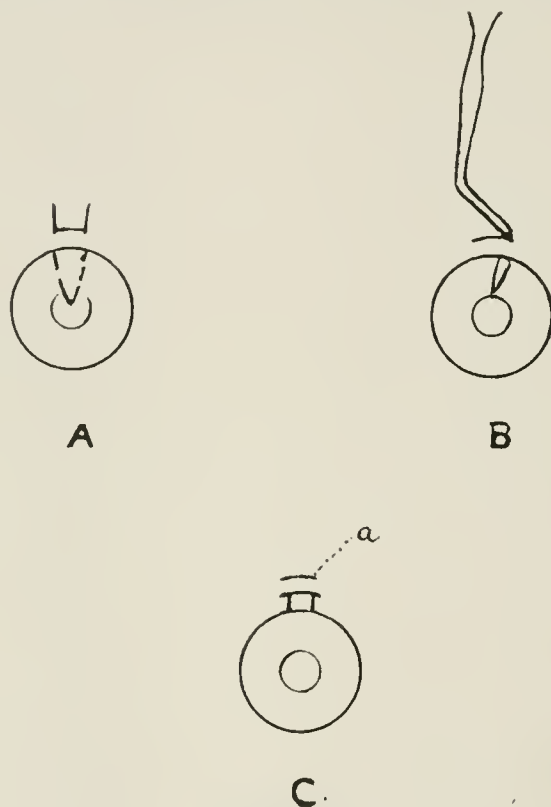


Fig. 5

(a—conjunctival puncture.)

emptied. The aqueous usually flows away directly through the conjunctival opening, producing no conjunctival œdema. The cutting is done by slow sawing, perhaps more in the withdrawal movements than in the insertion movements. We have never found the least difficulty in avoiding injury to the lens, though the iris sometimes suffers a little.

In the insertion movements the end of the blade must be kept pressed against the cornea. The conjunctiva is commonly protected by its mobility and elasticity. Occasionally the knife edge comes through the surface of the cornea or conjunctiva at the limbus, but this is of little or no consequence. Cutting the second lateral incision is a little more tedious, as the flap is now

less fixed. The drag upon the eye in the making of this second incision produced an escape of vitreous in one buphthalmic infant upon which I operated. The two incisions of course extend considerably beyond the level of the limbus at the posterior surface of the cornea (Fig. 6).

Eserine is again instilled if the combined effect of the



Fig. 6

a—conjunctiva.

b—limit of forward cuts with linear knife—base of flap.

adrenalin and cocaine has enlarged the pupil above the normal. The eye is covered with absorbent wool for a day, afterwards with a shield only. The anterior chamber is usually refilled next day. Should there be any considerable delay in this, the iris is apt to adhere more or less to the lateral incisions, and it is well to continue the use of eserine on this account.

Afterwards, with the chamber refilled, atropin may be required to break down posterior synechiae. The quite early use of atropin is also sometimes valuable to reduce the normal outflow of aqueous, thus to increase the filtration through the wound while healing is progressing. In one case of acute glaucoma in a blind eye, failure occurred through firm union of iris with the whole of the section. On this account iridectomy is indicated in acute glaucoma, unless the lateral incisions are made with Bishop Harman's scissors (see below). In a few of my early cases iridectomy was added, sometimes unnecessarily. Since then I have not found it necessary at all, except in cases of adherent leucoma. My colleague, Mr. Laws, who has performed over fifty of these operations, has not excised iris in more than one case.

In one blind eye a partially expulsive intraocular hemorrhage occurred. This and the vitreous escape above mentioned are the only accidents which have occurred in the performance of any of our Nottingham operations. In buphthalmic eyes, to avoid risk to the suspensory ligament, I should prefer in future to use Harman's scissors (see below).

Results. It is still too early to attempt more than a rough

estimate of my own results. It is the less necessary since the operation is being largely tested by others. I have performed up to date fifty-four operations in this country as above described, for glaucoma, primary or secondary. To the best of our knowledge neither Mr. Laws nor I have failed by this method to relieve the tension in any case of primary glaucoma still retaining any vision, except in one case. And in this one case the vision was only hand movements. But in hard blind eyes, congested and painful, I have had to be satisfied usually with relief of pain and congestion, the tension being only temporarily or partially reduced. Also one case of tension secondary to cyclitis, with a little vision still remaining in the outer field, resisted repeated operations.* An eye with tension secondary to fundus hemorrhage is still very hard, though painless, after two operations, one by knives alone, the other by Harman's scissors (see below). Two considerable staphylomata have developed at the sites of the operations. In another similar case, operated upon with Harman's scissors, the result was also very poor. And I doubt if it would have been appreciably better if the operation had been performed with knives only. Such cases might be failures with any form of operation for the relief of tension. In a number of cases of primary glaucoma with good, or fairly good vision, there has been a transient rise of tension two to four weeks after operation. But it has always passed off in a short time under a minimum use of eserine.

In the final results up to date there is usually a limited degree of filtration shown, apart from full reduction in tension, by a linear grey scar, representing a part or the whole of the section, under a more or less œdematous conjunctiva. The very interesting slides shown by Mr. Affleck Greaves, at the Ophthalmological Society in July of this year, show at least that true filtration through loose fibro-cellular tissue filling the wound can take place after this operation. In a few cases localized fistulous points develop. The conjunctival œdema varies considerably in different cases, quite apart from any condition of the eye before operation. There are evidently unappreciated and unintentional variations in technique, which influence the result considerably. It is fair to assume that the greater the œdema the freer the filtration. This is borne out usually by the resulting tension,

*Trans. Ophth. Soc. U. K., 1910.

which however has never been reduced very much below normal. But in a few cases with tension reduced to normal, there has been no conjunctival œdema at all.

Free filtration tends to produce localized opacity of the conjunctiva. One may notice in eyes still congested within a few weeks of the operation, a milky pallor of part of the swollen conjunctiva over and near the wound. Later, when all trace of injection of the eye has disappeared, the only noticeable evidence of opacity remaining is one's inability to see the underlying scleral scar. So far as we can tell the relief of tension, after the first month or so, is permanent. I have had one recurrence of tension later, but it was in a case of secondary glaucoma with anterior synechia following a corneal wound, and after the glaucoma operation two other operations had been performed, one for extraction of the lens, the other for extraction of capsule.

Mode of action. In the immediate future it appears advisable to test fully the principles upon which the operation was based. For some modification seems needed to provide the very free filtration required for the full reduction of tension in very advanced glaucoma, with filtration angle obliterated. To this end we need to observe closely the variations in results following slight and perhaps unintentional alterations in technique. It appears useless simply to repeat the procedure without change in any case of failure.

The main idea underlying the method is, as with my "wedge" operation, that of shrinkage of isolated tissue, such as takes place with grafts. The small flap presents a considerable bulk of tissue, normally vascular, which must remain very poorly nourished for a time, mainly through its basal attachment to non-vascular cornea. And the flow of lymph from the cornea is reduced by the deep extension of the lateral incisions in the cornea. Delayed union is thus accounted for, and some slight progressive shrinkage may be expected until new vessels have grown in from the surrounding sclerotic. That some slight shrinkage does take place is, I think, borne out by the clinical observation of the transient nature of the moderate recurrences of tension after operation above mentioned, the final relief coming without any perceptible elevation of the flap. This shrinkage explains also the very satisfactory results obtained in the more chronic forms of glaucoma as contrasted with the very poor results of ordinary iridectomy in chronic simple glaucoma.

If this explanation be correct, the longer the flap the greater

the shrinkage should be, and the surer the result. It must be admitted, however, that very short flaps have acted very well in our practice so far. It should be practicable to reduce the nutrition of the flap with the object of promoting shrinkage, by narrowing its base, if necessary, to vanishing point (Fig. 7a), as suggested to me by Mr. Lang. So far I have scarcely attempted to utilize this idea. In order to apply this modification, the primary incision should be made with the point of a broad triangular keratome. Otherwise the second of the sloping lateral incisions is difficult to make owing to mobility of the base of the flap.

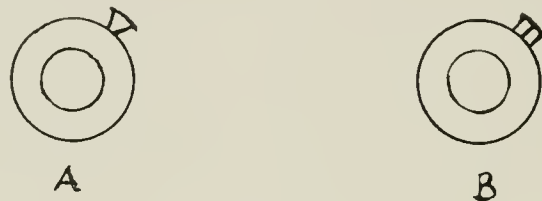


Fig. 7

Another means of reducing the nutrition of the flap, which I carried out once or twice in India, is to divide the flap into two (Fig. 7b). The middle incision is made before the two lateral ones. In one of my cases unusually free filtration, shown by subnormal tension, considerable conjunctival œdema and conjunctival opacity, appeared to be attributable to double puncture with the keratome. The first puncture being too superficial, the blade was withdrawn nearly and passed on again more deeply. It is obvious that dividing the flap up in this way must interfere with healing. Upon one or two later occasions I have tried this double puncture with the object of increasing filtration. But it may prove difficult to accomplish satisfactorily, owing to premature escape of aqueous. And the effect was not very evident in these cases.

In the original operations performed with the narrow Graefe knife, it was thought that the immediate conjunctival swelling produced by escape of aqueous might have drawn the flap a little forward by pull on the limbus, separating the wound surfaces and so assisting in securing permanent leakage. And possibly the somewhat poorer average results obtained since we have operated with a keratome may be attributable to the usual absence of this immediate conjunctival œdema. Quite lately I have been endeavoring to test this point by placing the conjunctival puncture as far away from the cornea as prac-

ticable, and by regulating the escape of aqueous after quick withdrawal of the keratome. Possibly, also, separation of the wound surfaces by blood may serve the same end. Hence a somewhat limited employment of adrenalin before operation.

Any early return of tension after operation tends to relieve itself by forcing the flap forwards. The earlier the recurrence the more noticeable is the displacement of the flap. I have known the tension above normal within a week of the operation. Short of raising the tension above normal, the instillation of atropin within the first week or ten days tends to increase the filtration through the wound, by restricting the normal outflow. A very slight permanent elevation of the flap may often be noticed without even a temporary rise of tension and without any use of atropin. It may be seen without conjunctival œdema.

Bishop Harman's twin scissors. I have kept till the last the few words I have to say upon these ingenious scissors, not through lack of appreciation of their value and importance, but because their employment alters the small flap sclerotomy very considerably. Mr. Harman has sufficiently described their use.* As first described they necessitated the reflexion of a conjunctival flap, which afterwards in my experience became somewhat fibrous, lessening filtration. My thirteen cases treated thus gave poorer average results than those obtained with knives alone. Since the scissor-cuts do not extend, like the knife incisions, beyond the level of the limbus at the deep surface of the cornea, the nutrition of the flap is probably less interfered with, and the shrinkage may perhaps be less. Also, apparently the flap does not swing forward quite so readily. On the other hand it is sometimes an advantage that there is practically no liability to the formation of anterior synechia. Thus even in quite acute glaucoma one is enabled to dispense with iridectomy.

Lately in half a dozen cases I simplified the operation by cutting through both conjunctiva and sclera with the scissors, after pinching up the conjunctiva with forceps, as mentioned by Bishop Harman in the present issue of *The Ophthalmoscope*. It is too early to say anything very definite as to the results. There was one definite failure, where the tension was secondary to iritis. One operation upon acute primary glaucoma seems to be a success.

*Trans. Ophth. Soc. U. K., 1911.

INTESTINAL SEPSIS AS AN ETIOLOGIC FACTOR IN CARDIO-VASCULAR DISEASE AND ASSO- CIATED OCULAR AFFECTIONS.*

BY S. D. RISLEY, M. D.,
PHILADELPHIA.

Notwithstanding the great advance which has been made through laboratory research, during comparatively recent years, in our understanding of the ultimate process of nutrition in health and disease, we nevertheless have only a vague and uncertain premise upon which to base conclusion in our study of the disease of nutrition.

Clinical observation has in great measure clarified our view of ocular affections associated with advanced cardiovascular disease in which the symptom complex comprises high arterial tension, arterio-sclerosis, the various phases of nephritis, intracranial apoplexies, retinal hemorrhages, *et. al.*; but our understanding of the etiologic factors in this symptom complex are by no means clear and definite. Modern laboratory research and clinical observation have, it is true, shown that the blood-vessel disease may be and is caused by certain specific infections notably syphilis. The well-known tendency to selection of the ectodermic and mesodermic structures of the body by colonies of the *Spirillum* of syphilis during its primary and secondary manifestations has been frequently observed in chorioidal disease and retinal endarteritis. So common is the presence of the tubercle bacillus in diseases of the uveal tract that some observers have regarded it as one of the most usual factors in the diseases of that vascular membrane.

But notwithstanding the encouragement afforded by these discoveries to further search for other specific infections, it must be admitted that in the vast majority of patients suffering from cardiovascular disease with ocular affections as a part of the general malady, neither syphilis, tuberculosis or other known specific infections or intoxicating agent has been demonstrated. Gout and rheumatism, whatever these may be proved to be, are unquestionably regarded as the most commonly present, as an etiologic factor. The association of the gouty or rheumatic diathesis and other allied states of general ill health with faulty digestion and assimilation of foods has for many years

*Presented at American Ophthalmological Society, New London, Conn., July, 1911.

claimed the attention of physicians. Experience in the treatment of disease had taught our immediate predecessors and the generation from which they sprang the importance of freeing the alimentary canal of noxious accumulations. Hence their first step in the treatment of practically all forms of disease was the administration of purgatives which were the sheet anchors by which they sought to have their patients weather the storm. Laboratory study has given to us in some measure the scientific explanation for the therapeutic experience of former generations. Careful study by many observers has made it reasonably certain that many unclassified forms of ill health are due to the fact so tersely stated by Metchinkoff that "the accumulation of waste matter retained in the large intestines, for considerable periods, becomes a nidus for microbes which produce fermentations and putrefication harmful to the organism. Although our knowledge of the subject is far from complete, it is certain that the intestinal flora contain some microbes which damage health, either by multiplying in the organism or by poisoning it by their secretions." A former generation of doctors swept the house, the modern doctor seeks to disinfect.

While the products of the intestinal flora are toxic and are the cause of some of the so-called auto-intoxications of which we hear, it is probable also that the microbes may themselves pass through the walls of the intestines and enter the blood stream to be carried to various organs of the body and there establish foci of infection.

Indeed, as was also suggested by Metchinkoff, some of the maladies resulting from constipation recall those of direct infection. Metchinkoff's contention is significant in this connection, viz.; "that the duration of life of mammals has been notably shortened, when compared with that of other vertebrates, as the result of chronic poisoning from an abundant intestinal flora which find opportunity to develop in their relatively larger colon." There is much in one's professional experience which seems to suggest that this conclusion "is true of the human species." The phlyctenular ophthalmia of childhood with the attending alimentary disturbance and with phlyctenulae distributed thickly over all the mucous membranes open to inspection is certainly suggestive of a general infection.

That the intestinal tract is often if not always the source

of infection in these cases seems to find corroboration in the fact that local treatment is usually unavailing, until the fermentation and putrefaction going on in the bowels are prevented by suitable treatment and the regulation of ingested foods. While it is possible that the nasal cavities, pharynx and tonsils may in some cases be the source of infection, it is probable that in many instances the condition of these tissues is only another local manifestation of the general infection of the organism.

Notwithstanding the fact of our limited knowledge of the ultimate processes of nutrition in health and disease, clinical observation suggests strongly that a quite definite relationship of cause and effect exists between many localized forms of disease and the presence in the blood and tissues of the organism of certain end-products of a faulty metabolism. A common cold in which the mucous membrane of the upper air passages, the ears, the sinuses in the anterior segment of the skull are involved; certain forms of iritis and muscular rheumatism may be cited as examples. Such a condition may be produced by sudden chilling of the surface of the body; the abnormally reduced temperature having arrested the physiologic chemico-vital changes in the fluids and tissues which are necessary to normal metabolism and health. In their stead the blood and lymph streams are loaded with faulty end-products which cause more or less serious impairment of health. It is equally true that a more or less nearly similar chain of events may be produced by the result of repeated occurrences of the conditions caused by their chronic persistence.

In addition to these commonly recognized etiologic factors, clinical study suggests that, not only does cardiovascular disease result from the uric acid diathesis but that in a considerable group of patients it may be caused either by specific infection, microbic in origin, entering the blood and lymph stream from the large intestine or by the absorption of the noxious products of an abundant intestinal flora, in persons of a constipated habit.

Reasoning *a priori* we are led to anticipate that the blood vessels, the lymphoid and the highly vascular structures of the body, would be the first to manifest the presence of a poison or

of infecting agents in the blood or lymph stream. Clinical observation confirms such reasoning. In a common cold and in many infections as in measles for example, we accordingly find the semi-erectile tissues of the nostrils and the conjunctiva among the first to manifest the presence of a disturbing influence in the organism.

In like manner and probably with equal frequency we witness affections of the highly vascular uveal tract.

It is unnecessary before this Society to elaborate these statements by detailed case histories. Allusion has already been made to the significant features afforded by the phlyctenular ophthalmia of childhood. I have also set forth at some length elsewhere the significance of this thesis in the rebellious asthenopias of many young people who came to us with fluffy, honey-combed chorioid, fronto-occipital headaches and impaired health; who notwithstanding the correction of errors of refraction and abnormalities of ocular balance, are not notably benefited by local treatment. In another place, reference was made to its relationship to persistent headache in the nervously unfit and as an etiologic factor in naso-pharyngeal disease resulting in secondary involvement of the contiguous bony sinuses, and in inflammation of the tympanum.

It is my design here to suggest that in some of the cases of serious ocular disease in which there is no obvious relationship to syphilis or tuberculosis or other demonstrable etiologic factors that the cause may be found in infectious or toxic influences originating in the alimentary tract.

Case 1.—In the summer of 1889, I was requested by the late Dr. Lucius French of Davenport, Iowa, to see lady aged forty-five, for rapid failure of vision. She had been a chronic invalid, but for the preceding two months had been confined to her room. The notable failure of vision was recent. There were concentric contraction of the fields and far-advanced atrophy in one eye. In the other there was a general haze, probably an oedema obscuring the details of the fundus. The veins were large and dark, the arteries small with gray borders. None of the palpable arteries were atheromatous, but she had what her physician pronounced “an anaemic heart murmur.” The pulse was soft with occasional intermission. She had constant abdominal pain and tenderness to palpation.

She had for years been constipated but for the last month this had been interrupted by attacks of diarrhea. Palpation of the abdomen revealed an enormous, impacted colon. After many days, with the administration of castor oil, high enemas and mechanical aid the colon was finally emptied of the most surprising quantity of offensive, hard, dark masses of contents the retained accumulations of, possibly months, probably adherent to the walls of the colon or detained in sacculated distension of the gut. Under subsequent treatment, by abdominal massage, a discriminating diet and medication, her general health was restored. I saw her again several years later. She was then apparently in perfect, general health, but ophthalmoscopically the atrophy of both optic nerves seemed complete. She had retained only sufficient vision to go about in familiar surroundings without aid. There was nothing in her own or her family history other than the impacted colon and long history of constipation to explain her ocular disease which was doubtless a toxic neuro-retinitis.

Case 2.—While this paper was in the course of preparation, Mrs. B., aet., sixty-eight, the wife of a country physician came because of rapidly failing vision. She suffered very little pain but had spells of general weakness and vertigo. O. D., V.=6/xxx with eccentric fixation; O. S., no letters on the chart at any distance. She was unable to count fingers but recognized movements of the hand, eccentrically placed, the center of the field being apparently completely blind. The field in the right eye was concentrically contracted, and there was a small absolute central scotoma.

The ophthalmoscopic picture was that of a neuro-retinitis rapidly advancing to atrophy on the left side. In O.D. the veins were full, dark and tortuous to the limit of the ophthalmoscopic field and the lower temporal vein was much larger than the others. The arteries were apparently normal in size without gray borders. All details were slightly veiled. The papilla was not swollen but was gray red, opaque and the margins obscured. The same changes were present in the left eye but at a more advanced stage. There were no hemorrhages and no evidence of their earlier presence.

The blood pressure was 172 systolic and 145 diastolic. She was sent to Dr. David Riesman for study who confirmed my

record of blood pressure and reported his findings as follows: "The urine is free from albumin and sugar, has a sp. gr. of 1026 and is moderately acid. There is a congested hemorrhoidal polyp. She has been suffering from chronic constipation, interrupted by attacks of diarrhea. This diarrhea seemed to be accompanied by absorption of toxic material. The diagnosis might be written as follows: Hypertrophy and dilatation of the heart, hypertension, chronic constipation, auto-intoxication, hemorrhoids. Regarding treatment, it seems to me that attention to the bowels is of the greatest importance."

The most careful study could elicit no other plausible origin for her neuro-retinitis than that of an auto-intoxication.

Case 3—C. S., aged 51, came June 1, 1911, complaining of impaired vision, attacks of general faintness with tachycardia, vertigo, extreme nervousness and hallucinations. He had a quite constant headache with a sense of painful pressure at the vertex. He said that for many years he had been a dyspeptic with recurrence of intestinal trouble and flatulence. He had found it necessary to always be taking digestive tablets, had always been constipated and had acquired the cathartic habit, finding the greatest relief from calomel and soda followed by salines. He was a large man with an average weight of 176. In his youth he had acquired gonorrhea, but there was no evidence of syphilitic infection, that is to say he had never had recognized secondaries, but owing to the inquiry and study of various physicians was in constant dread of the disease. His wife had always been in good health. They had a son twenty-seven years of age, a stalwart, healthy man. There had been no miscarriages. He said he had never tasted whiskey in his life, but occasionally took a glass of beer, but for many years had smoked to excess, often as many as fifteen to twenty cigars in twenty-four hours, but had stopped his cigars two years ago. He had always eaten large quantities of food, habitually taking for breakfast, oatmeal with cream and sugar, three boiled eggs, fried potatoes and two or three cups of coffee.

O. D., V.=6/xxc. with eccentric fixation; O. S., V.=6/xx slowly, slightly eccentric fixation. There was an absolute paracentral scotoma in the right eye with a relative scotoma in the left. There was also some concentric contraction of the fields for form in both eyes, which appeared to be due rather to a partial

failure or uncertainty of perception in the peripheral field. He had a pulse rate of 80 to the minute which on the slightest exertion would rise to 90 or higher.

His blood pressure was 200 mm. in systole. In August, 1906, he had discovered a blur before his right eye on awakening in the morning, which his physician told him was due to a hemorrhage in the eye and administered large doses of potassium iodid and protiodid of mercury, but without notable relief.

In January of the present year, a blur came before the left eye, which he was again told was due to a hemorrhage, and was once more placed upon ascending doses of iodid of potassium with protiodid of mercury, which he took steadily until the first of April, during which time he lost 20 pounds in weight and the symptoms of which he complained on June 1st came on, that is to say, his general nervousness, headache with pressure at the vertex, vertigo and tachycardia, with increase of his syphiliphobia. He then abandoned both his medicine and his physician until June 1st, so that he had been without treatment from April 1st to June 1st.

The ophthalmoscope on June 1st, revealed in the right eye, a large area of retino-chorioiditis with extensive absorption patches in the macular region. The details were obscured by fine web-like opacities of the vitreous. The entire fundus was red and fluffy. No swelling of the papilla could be made out, but the margins faded insensibly into the surrounding eye ground. The arteries appeared of normal size but the veins were large, dark and wavy to the limit of the ophthalmoscopic field. There were no hemorrhages. In the left eye, the same general conditions were present, but the changes at the macula consisted of a maroon-colored, wooly area and a granular nest at the fovea. The vitreous was transparent but a faint haze in the retina slightly veiled every detail. His urine was free from sugar but there was a trace of albumin, a decided amount of indican with hyaline and granular casts, the latter 5 or more in every minim voided, and a specific gravity of 1016.

He was sent to Dr. R. G. Curtin for examination, who reported no irregularity of the heart or murmur. Notwithstanding the fact that he was seen during one of his "queer spells" which occurred while under physical examination in Dr. Curtin's office,

Dr. Curtin suggested that his circulatory symptoms were probably those of Graves Disease which was rendered plausible by the fact that a sister was afflicted with that disease in a mild form.

The man was placed on skimmed milk and stale bread diet exclusively, and was directed to take a sufficient dose of sulphate of magnesia daily to secure free purgation, and five grains of chlorid of calcium, four times daily. In a week he reported feeling much better. He was then allowed a more generous diet and received 1/100 gr. of bichlorid of mercury after each meal with a nux-vomica tonic and was sent to the seashore. On July 7th he reported that he no longer suffered from headache or pressure, that his "queer spells" had disappeared. There was no vertigo, no hallucinations. Blood pressure 145 mm. O. D., V.=6/22.3 and O. S., V.=6/vii i/2. There can be but little doubt that both his general condition and the ocular disease were produced by his intestinal toxemia. It is interesting, at least, to inquire how far his excessive use of tobacco set up his intestinal state primarily.

To this group of cases might be added a considerable number of patients affected with diseases of the uveal tract; as for example, recurrent iritis, the so-called cases of serous iritis with turbid aqueous and vitreous opacities and deposits upon the Membrane of Descemet, which are often a more advanced stage of mild but equally persistent affections of the fundus, characterized by a flannel red, fluffy eye ground with undue sensibility to light, rebellious asthenopia, lowered acuity of vision, uncertain fields, impaired light sense and general ill health. The same may be said of another important group usually occurring after middle life in patients with retino-chorioidal disease, characterized by oedema of the retina, tortuous and full veins, high vascular tension, headache, impaired vision, contracted fields, acid urine of high specific gravity with or without traces of albumin, with or without demonstrable arterio-sclerosis, but which, if neglected, unquestionably result in permanent cardiovascular disease.

It is not my intention to rehearse the extensive literature which has grown up during the last decade in which such untiring industry and serious endeavor have been made to fix definitely our knowledge of the auto-toxemias and their relationship to disease of the eye and other organs of the body. Our knowledge

of this complex subject remains, as stated by de Schweinitz in American Medical Association in 1906. Quoting and emphasizing the conclusion of Elsehnig and Taylor, he said, "We do not know the entity of a single auto-intoxication except the acidosis of diabetic coma, and we know that no known auto-intoxication is to be attributed to any known end-product of any known metabolism, but we do know from clinical analogy that auto-intoxications exist, even if their true nature is as yet a secret."

It has been my intention to show by illustrative examples of ocular disease, the apparent relationship of cause and effect between such diseases and faulty intestinal conditions and diseases of the cardiovascular system.

The subject is not new. The ophthalmic surgeon has from my earliest recollections begun his campaign against any serious form of ocular disease by uniform study of the urine and by freeing the alimentary canal by purgatives. This must be regarded as an appreciation on the part of every experienced surgeon of the clinical relationship between alimentary states and many forms of local disease.

THE BROAD KERATOME IN THE REMOVAL OF A DISLOCATED LENS.*

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As the dislocation of the lens into the interior chamber and its removal were the steps that led up to cataract extraction, and as Daviel made use of the keratome for the first puncture of the cornea and then enlarged the wound with scissors, the probability is that there is nothing new in the procedure here described, although it is not mentioned in any of the modern standard works that have been consulted. In such dislocations, or in partial dislocation into the anterior chamber, the usual practice is to make an incision with a Graefe knife in the portion of the cornea in which it may best be placed in order to be certain of securing the lens. Sometimes it is advisable to pass a needle back of the lens before executing the incision in order to prevent it,

*Read before the Ophthalmic Section of the St. Louis Medical Society, October 4th, 1911.

should it be a small nucleus, from slipping backward into the vitreous.

In this particular instance the patient, now 44 years of age had been under observation for ectopia lentis in each eye during a period of 26 years, the lens in the right eye being located upward and outward and in the left eye nearly upward, and each respectively occupying about half the pupil. With the hypermetropia of the aphakic portion of the pupils corrected, vision was 20/120 in the right and 20/38 in the left eye, the correction rendering the eyes comfortable for all ordinary work. Eight months ago there was complaint of seeing at times a red spot in the upper portion of the field of the right eye, which had been noticed soon after a sudden fall that happened to the patient as he was throwing a ball in a bowling alley. The ophthalmoscope showed that the right lens had been loosened from above, was lying in the lower anterior portion of the vitreous and would float upward with a sudden movement of the globe. The eye being quiet and tension below normal it was considered best not to interfere.

After the lapse of about three months there came at long intervals brief attacks of blurred vision in the right eye. In the latter part of July, while on a tour through the west, the eye became suddenly inflamed and severely painful, and Dr. Foster at Denver was consulted, who informed the patient that he was suffering with glaucoma and that an immediate operation was indicated, at the same time prescribing medicine which gave relief. The operation was deferred and when the patient arrived at St. Louis, three days later, the globe was quiet, vision was 20/120, as heretofore, tension a little sub-normal, pupil normal and sensitive to light and oblique illumination showed only a slight striated keratitis, which later disappeared.

On the morning of September 22nd he was awakened by severe pain in the right eye and discovered vision so blurred that he could not distinguish large objects. Six hours later when he arrived at the office, the lens was half way through the pupil and wedged firmly in the outer portion of the anterior chamber, the globe was hard and somewhat injected and vision reduced to motion of the hand at two feet. After the use of pilocarpine 1/120 several times in the course of three hours with a hope of preventing the lens from receding, its removal

was effected by making the corneal incision to the temporal side in the sclero-corneal margin with a broad lance-shaped keratome, the point a rectangle, and passing the blade back of the lens, so as to fix the lens between the blade and the cornea. The fixation forceps being then exchanged for a Daviel spoon, pressure was made with this backward on the nasal portion of the cornea as the knife was slowly withdrawn, thus forcing the lens to follow through the wound on the anterior surface of the knife. When sufficient room was given in the wound by the receding blade the lens, a hard black nucleus, 4.5 by 6.5 millimeters in size, came away readily, and the final slow exit of the knife was followed by a moderate gush of aqueous and fluid vitreous. The wound closed promptly, the anterior chamber refilled immediately and the pupil replaced itself, clear but moderately eccentric to the temporal side. From the corneal wound a very little blood showed in the outer portion of the anterior chamber. Considerable pain accompanied the escape of aqueous, suggestive of deep hemorrhage. Although the patient was very quiet and reasonable this pain continued for half an hour before it ceased sufficiently to justify the adjustment of the final dressing. A restless but otherwise fairly comfortable night was passed, after which there was no further trouble, the wound healing readily so the patient was dismissed from the hospital in eleven days, vision being 20/120, or the same as previous to the glaucomatous attack.

The keratome acted as the fixing needle, the knife for the corneal incision, and the cataract spoon, or loop, or forceps ordinarily employed for the delivery of the lens. With a pupil widely dilated, it is possible that a lens dislocated into the anterior portion of the vitreous may be more safely removed in this way than by any other thus far devised, or the blade may be a very little withdrawn after the execution of the incision and the loop passed down in front of it, the blade being then employed as a support to the vitreous. For this purpose, or for the removal of the lens from the anterior chamber, a keratome should be used that is not less than 12.5 millimeters in width from one lateral angle to the other; the blade should be perfectly sharp, with its surfaces smooth and free from stains; also firm fixation is essential throughout every stage of the incision.

A STUDY OF SYMPATHETIC OPHTHALMIA.

BY PROF. DR. A. ELSCHNIG, PRAGUE, AUSTRIA.

[Translated by Dr. Harry S. Gradle, Chicago, from Graefe's Archiv.
f. Ophthal. Volume XXVIII.]

With Bibliography.

In two previous studies (1 and 2) I was able to prove, 1, that in the eye there occurs a resorption of antigens in the form of antigens and that under certain influences there is an increase in this antigenous action (result of subconjunctival injections) probably by lessened resorption, while other influences, as acute infection, produce a decrease in the antigenous action of the intra-ocular bodies. These facts have recently been confirmed by Krusius (3) and Kummell (4) by the finer methods of anaphylaxis.

2. I could prove that uveal emulsion (uvea and pigment epithelium) introduced into the animal body produces an antigenous effect and that the uvea possesses decided organ specificity, not type specificity, the pigment being in all probability the active element.

From these facts our theory in regard to the cause of sympathetic ophthalmia by reason of the hypersensibility of the uvea, produced by antigenous absorption of uveal tissue from the primarily diseased eye, received a firm foundation. Therefore we must dilate upon this theory and see whether it be further supported by the clinical study of sympathetic irido-cyclitis and by the histo-pathology of sympathetic inflammations. In consequence I will first speak of the etiology of the various forms of irido-cyclitis, especially the idiopathic, then the anatomical picture of the so-called sympathetic inflammation, following this the present theories in regard to the cause of sympathetic inflammations, and finally the deductions that can be drawn in support of our theory.

Etiology and Course of Spontaneous Irido-Cyclitis.

Before I proceed to discuss the views in regard to the cause of sympathetic ophthalmia, which are the result of the serological experiments and the study of the clinical course of the disease, it seems important to speak about the so-called idiopathic iritis. If my views prove to be correct, there cannot be any essential difference between the sympathetic ophthalmia and the so-called idiopathic irido-cyclitis, either in the involvement of both eyes or in the clinical course and result of the irido-cyclitis. In

defense of this, I wish to present the material that has passed through my hands during the past three and a half years that I have conducted the German University Eye Clinic in Prague.

Practically all cases in the past two years have been thoroughly examined with the modern diagnostic aids (Wassermann and Tuberculin), as well as a thorough physical examination in the internal clinic of either Hofrat von Jakseh or Hofrat Pribram, and special attention has been paid to the urinary examination. Further examinations of the patients were conducted in the oto-rhinological clinic of Prof. Piffle and the dermatological clinic of Prof. Kreibich. In suspicious cases a microscopical blood examination was carried out. Of course, not all cases could be examined thus carefully. Many cases who either left the clinic after a short period or in whom there was no indication for a careful examination, cannot hence be used for our purposes. By "carefully examined cases" I mean those in whom the above mentioned examinations, at least Wassermann and Tuberculin, were thoroughly carried out; by "non-carefully examined" those cases are designated where either one or both of the above mentioned reactions were omitted.

Not all cases of traumatic irido-cyclitis were included in these statistics, nor are cases of irido-cyclitis in eyes which have suffered from parenchymatous keratitis. Of the cases of so-called sympathetic irido-cyclitis, only one doubtful case is included (II). Apart from this case, no irido-cyclitis in the second eye has been observed following either a traumatic or operative irido-cyclitis. However, two cases of long existing sympathetic irido-cyclitis, even after a course of treatment of several months' duration, were again received into the clinic. But, although both of these cases were nephritics, neither are included in my material.

Among the 142 cases (76 males and 66 females) were 18 in whom syphilis could be recognized by the physical signs and symptoms, usually the so-called secondary syphilis, occurring months to years after the initial lesion. In two of these cases, the tuberculin reaction was positive without any manifest symptoms of tuberculosis and in one there was an indicamuria. In 8 cases (4 adults and 4 children) the diagnosis of syphilis could be made only by the positive Wassermann. None of these cases presented a characteristic picture or a corresponding history of

syphilis. Two of them showed no other disease, while in the other six, the following disturbances were present and had to be taken into consideration in determining the cause of the iritis: four times indicanuria combined with sphenoidal suppuration, chronic nephritis, rheumatism, gonorrhoea, and a heart lesion combined with the presence of skatol in the urine. In one other case, nasal polypi were present and at the beginning of the iritis, a two-week old gonorrhea and chronic oöphoritis, probably gonorrhoeal.

In four of these eight cases, both eyes were affected at about the same time, that is within four weeks of each other, while in another case it was two years and another three years before both eyes were affected. Two cases were monocular, one a 12-year-old child with chronic rheumatism (hereditary lues?) and the other a case with a heart lesion, and indican and skatol in the urine.

In one case (a 33-year-old woman with bilateral oöphoritis) it was remarkable that repeated Tuberculin and Wassermann tests were negative, whereas after a thorough course of sweats combined with iodides and arsenics, the final examination (two years after the onset) gave a positive Wassermann. However, here the general examination showed positive signs of hereditary lues.

It is well known that not every iritis in a luetic individual nor every iritis accompanied by a positive Wassermann, is of a true luetic nature. Therefore we would not be amiss in ascribing at least some of these eight cases, not to lues, but to some of the "internal diseases" which stand in such close relationship to syphilis. But, with our present knowledge, I feel it necessary to classify these cases under lues.

Let us in similar manner examine the cases of iritis of suspected tubercular etiology, 24 in all. General tubercular symptoms, as apicitis, were present in only 10 cases, one of which suffered at the same time with rheumatism, while three presented rather typical symptoms of ocular tuberculosis (only one case of absolutely typical iris tuberculosis). The positive result of the tuberculin reaction aroused suspicions of an active or passive tubercular focus in 14 cases. It may be well to remark here that in no case was a local ocular reaction visible. Of these 14 cases, tuberculosis could be positively verified in six, and rheumatism in two; three cases showed indicanuria, one albuminuria, and two diabetes.

Of the 24 cases on a tubercular basis, 13 were unilateral and 11 bilateral. Six of these latter were affected in both eyes simultaneously, three within a few weeks, one within a few years, and one in a greater number of years.

Here too, although active or passive tuberculosis could be proven in the greater number of cases, it is not possible to say that the affection of the eye is directly due to the tubercle bacillus or to tubercle toxins, still for the sake of consistency, we must classify these cases under the heading of tuberculosis.

In addition to the two above mentioned diabetics, there was also one case of very mild diabetes (never more than 0.3% sugar) with a bilateral iritis and innumerable relapses. I have had this patient under observation for seven years and although Wassermann and Tuberculin reactions were negative, still the grandfather had had an unquestionable lues.

In the other 51 cases, the above mentioned examinations could not be accurately carried out, partially because same came in the pre-Wassermann period. Thirty-three of these cases among which were three cases with heterochromia and cataract, showed absolutely no etiological factors. In 11 cases (one heterochromia iridis with cataract) indicanuria was present, six times alone, and once with skatol, once with albumin, twice with mitral stenosis, and once with goitre. Other cases showed combinations of rheumatism with nephritis, albuminuria, pleurisy, mitral insufficiency, chronic cystitis, and twice rheumatism alone and once albuminuria alone.

As there certainly must have been some of these cases which would have reacted positively to Wassermann or Tuberculin and therefore would have fallen under the heading of lues or tuberculosis, I will not speak at length about these "non-carefully examined" cases.

In three cases iritis appeared after an acute infectious disease, and among them was the above mentioned case of positive non-sympathetic ophthalmia. One case had a small amount of albumin in the urine (bilateral simultaneous iritis) and the other showed the typical picture of a unilateral metastatic irido-chorioiditis (enucleation after two months). In both cases the Wassermann and Tuberculin tests were negative.

Thus there remains 37 cases (III) which, despite examinations by all the modern diagnostic methods, showed neither lues,

tuberculosis, nor any infectious disease as the cause of the iritis. Let us first discuss the total material and later the etiology of these 37 cases.

Among the 142 cases there was an equal number of uni- and bilateral affections (IV); among the latter class were 37 patients whose both eyes became diseased practically simultaneously, while the other 34 cases showed a greater or less interval of time. Of course it is not only possible but likely that among the unilateral affections were many that became bilateral after leaving our care, and among the bilateral class are many patients that have been on our clinical records for years on account of frequent relapses or for operations, etc.

In the following statistics I shall count as "blind" those eyes whose ultimate vision was not better than ability to count fingers in five meters, also the cases of total amaurosis and enucleations. Among the "not-cured" are the cases with an ultimate vision of 0.1 to 0.5, while any vision over 0.5 shall classify the eye as "cured."

Among the 71 cases of unilateral iritis, 22 became blind (about 30%), 15 were not cured (22%), and 34 were cured (nearly 48%); while among the 71 cases of bilateral affection (142 eyes), 62 eyes (almost 43%) became blind, 38 remained non-cured, and only 42 eyes could be classed as cured (only 29%). Among the 37 patients in whom the treatment resulted the same in both eyes were 20 totally blind (54% contrasted to 30% among the unilateral affections). Contrast the 40% of cures in the unilateral iritis to the 29% of cures in the cases of bilateral iritis.

The statistics of the 92 cases not referable to lues, tuberculosis or a sympathizing inflammation must be given for purposes of comparison. Among these 92 patients (44 men and 48 women) were 43 unilateral cases, of which number, 23 (54%) were cured, and 13 (30%) blind. Of the 49 bilateral cases (98 eyes), 29 eyes (over 29%) were cured and 50 eyes (over 50%) blind. Of the 27 patients in whom the therapeutic result was the same in both eyes, 16 cases (nearly 60%) became blind and only 9 (30%) cured.

In regard to the frequency of the affection of one or both eyes, I can find only one short reference in the literature, the statistics which Schnable (5) gave in an interesting discussion

upon sympathetic ophthalmia. Within the space of six years, Sehnabel collected 216 cases of irido-cyclitis from the Vienna clinical material. I do not care to maintain the distinction between "acute" and "chronic" that he advised as such a differentiation would not account for the frequent relapses that appear in cases upon leaving the clinic and therefore forcing them from the acute into the chronic or relapsing group. Among these 216 cases were 99 bilateral and 117 unilateral. Included among these were all cases of syphilitic iritis which, however, were mostly unilateral. If, however, we accept the terminus "chronic irido-cyclitis," then the number of bilateral affections is greatly raised, for among the 82 cases of chronic irido-cyclitis were 70 bilateral cases.

In consequence of these observations we can state:

1. Non-traumatic iritis affects both eyes with extraordinary frequency.

2. As Sehnabel's as well as my own statistics show, the chronic inflammatory or slowly progressive (*schleichenden*) iritis is accompanied after a greater or less interval of time by a similar disease in the other eye in the majority of cases.

3. The prognosis of the spontaneous or idiopathic irido-cyclitis is not as favorable as one would be led to expect by contrasting the prognostic relationship of the sympathetic and spontaneous types of irido-cyclitis.

The fact that sympathetic inflammation is not as serious a disease as was formerly believed, must also be taken into consideration. Schirmer (38) showed from the material at his command that at least 14% of such cases and probably more resulted in cures. Gifford (*Klin. Monatsbl. Augenheilk.* Vol. I, 1910) had only two bad results in 16 cases and 12 very good results. Therefore the 29% of cures in cases of so-called idiopathic irido-cyclitis does not contrast so poorly with the results of sympathetic ophthalmia.

Let us return to the etiology of the idiopathic irido-cyclitis. A glance into the statistics of other large clinics may show much we are still in the dark regarding the etiology of this disease, despite the rapid advances that modern diagnostic methods have made. Hessberg (8) writes of 58 cases from Uhthoff's clinic, among which were 17 cases of unknown etiology (nearly 30%). Fleischer (7) of the Tübingen Clinic speaks of 17 cases of plastic exudative acute iritis, seven of which were of unknown etiology.

four case of iritis in children with the definite cause known in but two of them, 33 cases of chronic iritis, 16 of which were of unknown cause, and 30 cases of chronic irido-cyclitis without any etiological diagnosis in 13. Together 45% of the cases were of unknown etiology.

Therefore we have accustomed ourselves to the lack of definite etiological factors in a certain percentage of cases of irido-cyclitis.

I attempted to show a few years ago that the chronic relapsing irido-cyclitis characterized by multiple precipitates, synechiaie and vitreous opacities is due to a form of auto-intoxication.

A glance at the previously quoted statistics will show that my views in regard to the etiological importance of auto-intoxication have not been universally accepted (V). But their importance can be seen by a careful examination of the 38 cases of irido-cyclitis in non-luetic and non-tubercular individuals.

In one case, a 4-year-old child, a trauma could not be definitely excluded. We found one case each of the following: gonorrhoea with albuminuria, disseminated posterior sclerosis, arthritis urica in a case with a negative Wassermann which had had anti-syphilitic treatment for years without any history of syphilis, carcinoma of the stomach, and albuminuria, rheumatism and mitral insufficiency, albuminuria (probably orthostatic) and twice chronic nephritis.

Subtracting these cases, there still remains 29 cases without any definite etiological factors. In 16 of them there was an increased excretion of indican, in eight of which it was combined with albuminuria once, mitral insufficiency once, empyemia of the accessory sinuses twice (VI), rheumatism three times, and once alternating albuminuria and indicanuria. In all of these cases a disturbance of the intestinal functions could be proven either anemnetically or clinically, so that I do not hesitate to state that **THESE CASES STAND IN CLOSE RELATIONSHIP TO AUTO-INTOXICATION FROM THE GASTRO-INTESTINAL TRACT.**

In the remaining 13 cases no etiological factors at all could be proven. In part the patients did not remain long enough in the clinic to discover any increase in the indican excretion, which frequently varies greatly, while in others the history of intestinal disturbances and constipation was disproven by clinical examina-

tion. In some cases, too, the iritis had passed away several years before.

Since nothing pointed to general systemic infection, the dearly beloved general phrase, "endogenous bacterial infection," could not be applied to these cases.

As ophthalmologists do not seem to consider auto-intoxication of etiological importance in diseases of the eye, I would like to dilate upon it at this point. Jaksch (8) (VII) was the first man in German literature to recognize the importance of the autotoxikoses (as he properly called auto-intoxications). Since then this study has received more attention, although full details are still lacking. Martius, one of the pioneers in this line, has contributed much to our knowledge (9). He divides the endogenous toxins into resorption toxins and histogenic toxins.

I. (a) Resorption toxins are those that are produced from non-toxic substances on the internal surfaces of the body and have a toxic effect only upon resorption. There are therefore endogenous intoxications resulting, according to Martius, from the action of bacteria upon foodstuffs and intestinal secretions. For the production of such an intoxication, however, there must be either an increased formation of the toxins in question or an increased amount due to intestinal stagnation. In addition the necessity for favorable conditions for resorption must be present. Such enterogenous infections may be proven by the presence of pathological substances in the urine or they may show themselves only clinically without the possibility of proving the presence of toxins.

A lesser role among the resorption toxins is played by (b) the cystogenous toxins from the bladder (ammoniemia) and (c) pyogenous auto-intoxications from pus masses in the body.

II. The metabolic toxins are divided by Martius into (a) toxic products of the normal metabolism which lead to intoxication by excessive production or by failure of antitoxic substances and (b) toxic products of abnormal metabolism.

Examples of the excessive production of toxins are hyperthyroidism (*Morbus Basedowii*) gout, diabetes, oxaluria (the last three belong to disease of disturbed metabolism of the narrower sense).

Examples of intoxications resulting from non-production of antitoxins are insufficiency of the lungs, kidneys, biliary secre-

tion, the skin, myxoedema, pancreas, diabetes, Addison's disease, yellow liver atrophy.

(b) Abnormal metabolism. Hereby result toxic products which are foreign to normal metabolism. As examples of this may be mentioned diabetic and carcinomatous coma.

Here I would like to refer to the increased attention to auto-intoxication which Combe (10) has so ably worked upon, for the internists, even with their rapidly increasing knowledge, are not able to define and recognize every disturbance of metabolism, in the widest sense of the word. As I mentioned in my previous publications (46), the gastro-intestinal autotoxikoses are the most easily recognizable and hence we know more about the disturbances that they cause. But how little we really know about this subject is shown by a remark of one of the leading men (Combe), who says "that we cannot take into account those toxins which the organisms produces from the carbo-hydrates and fats, for their chemistry in the physiological sense is but slightly known" (10). The same author was able to prove that a considerable amount of ptomaines is produced by intestinal putrefaction, that a portion of these is absorbed, circulates in the blood stream, and produces toxic symptoms before its excretion in the urine—but that as yet no clinical method exists to prove the presence of these ptomaines either qualitatively or quantitatively.

Therefore we must content ourselves with a short review of the gastro-intestinal auto-intoxications that fall within our scope and especially of the products of albuminous putrefaction.

And here also it is impossible to determine whether it is the abnormal products of disintegration, that is, pathological formation of albumin either as a result of anomalies of the glands of the intestine, or abnormal action of the bacteria that play the main role, or whether it be an abnormal power of absorption; in other words, a subnormal power of neutralizing the products of decomposition which come into the blood.

It must not be believed that an indicanuria which is merely a symptom of pathological decomposition of albumen and subsequent absorption into the blood, represents all of the possibilities of a pathological albumin decomposition (VIII). Only a careful quantitative estimation of the phenol derivatives in the urine and other pathological products under a varying protein diet

can determine, according to Jaksch, whether the decomposition of albumen and the excretion of such products occur in normal manner through the kidneys or not; thus, whether in the above mentioned 13 cases without any symptoms there were pathological changes in the decomposition in the albumin in the intestinal tract (in the widest sense of the word).

A short time ago Wessely (11) demonstrated experimentally how toxic the products of albuminous decomposition, which occur normally in the intestinal tract, are. He injected small amounts of indol into the vitreous, and demonstrated the change in the retina and the optic nerve (Turgor, cloudiness of the retina and the optic nerve, and eventually atrophy of a high degree with very thin vessels). But more important is the fact that he recognized the importance of auto-intoxications in diseases of the eye.

The role that auto-intoxications play as the cause of general and local diseases is gradually becoming recognized. I would like to mention the most interesting research of Adalbert Schmidt (12), of Shittenhelm and Weichardt (13), who showed peculiar affinity of toxins of albumen and anaphylaxis to the intestine, and the role that hyper-sensibility plays in infection and immunity.

Lubarsh (14) was able to prove that the permanent and slow absorption of auto- and exo-toxins from the small intestine were of the greatest importance etiologically in arterio-sclerosis in the young (IX).

But the products of disturbed metabolism are much more complicated.

The greater our knowledge becomes of the function of the individual organs, their important changes, and the greater the importance of the so-called "glands with internal secretion" and their influence upon the integrity of the entire organism, the more difficult is the recognition of pathological changes in metabolism and changes that may lead to pathological processes. None of our present methods of clinical examination (morphological blood examinations, determination of viscosity of the blood, etc.), give us a positive diagnostic standpoint in regard to the hyper or subnormal resistant influences of the individual against pathological influences either in nutrition or manner of living.

Martins in the above mentioned communications collected

all these factors and gave us the clearest conception of how the whole herd of anomalies of metabolism (auto-intoxication) can be dependent upon a constitutional anomaly. He declares the basis of the disease to be nothing else but a congenital or contracted organ weakness. All causes of disease excepting those which for all organs possess deadly potency, as mechanical, chemical or absolute toxic actions, are relative, that is with equal strength they may cause disease in one organism while in others they may not. "Upon the equation P to C (P is a symbol for all possible external causes of disease, C is the constitution) depends in each individual case the presence or absence of disease."

Only in slight details can these constitutional anomalies be accurately determined and anatomically not at all. The attempt of Kraus to prove that exhaustion is one of the primary factors is disproved by Martius. Among other things, these constitutional anomalies manifest themselves early as infantilism which is recognized as the cause of certain definite diseases, especially of the nervous type. [Fromme (15).] Their condition can also be shown in the functional tests of such organs as can be reached and is manifest by [Martius] the frequent hypoachylia, constitutional albuminuria and glycosuria, constitutional tendency toward fat and gout, weakness of the heart, blood forming organs and blood vessels. Time alone will bring definite conclusions, but only when the importance of the constitutional anomalies has been recognized by specialists as well as by internists. Even now the role of these constitutional anomalies is fairly generally recognized not as the direct causative factor but as the inherent disposition toward disease.

Cramer (16) made the definite assertion that "a being is as variable in his individual powers of resistance against destructive influences as he is variable in his external appearance" and that "a being constitutionally varies greatly in his powers of resistance against the results of the actions of endogenous destructive factors." Only through this conception can we understand how isolated individuals whose manners of life are identical suffer from disturbances as a result of which occur various diseases.

Thus, I believe, I am justified in ascribing those cases of irido-cyclitis with an existing intestinal disturbance and a corresponding urinary condition to a gastro-intestinal auto-intoxica-

tion and those cases in which no etiological factor could be found to an auto-intoxication dependent upon disturbances of metabolism or constitutional anomalies. There is no disease without its cause and those localized organ diseases which are not the result of some extraneous destructive factor must have an endogenous cause. Both forms of auto-intoxication are dependent upon a congenital or contracted lessened resistance, in other words a constitutional anomaly.

It is also possible that a congenital lessened resistance of the eye itself may be a factor, that the frequent occurrence of inflammation in an eye that shows visible congenital anomalies (microphthalmos, coloboma of the chorioid) is due to a constitutional lessened resistance which as yet can only be recognized as a lessened resistance to external or functional influences.

Here I would like to mention the importance of syphilis, especially of the congenital type, for the etiology of iridocyclitis, as well as many other diseases of the eye.

If Cramer (16) is right in saying that "all individuals during whose conception cachexia existed are of lessened resistance," then it is conceivable that the children of tubercular or syphilitic individuals, although these may not manifest symptoms of these diseases constitutionally, have a lessened resistance, and in consequence are easily affected by the accompanying auto-intoxications.

In a previous communication (46) I showed how frequently symptoms of hereditary lues are accompanied by positive disturbances of the intestinal tract; in other words signs of degenerative metabolism, and in these cases vigorous anti-luetic treatment is without effect upon the coincident disease. I then said that in such cases a relationship between the hereditary lues and the eye diseases existed only in that the hereditary lues *peracta* had caused atrophic changes in the glandular structures of the intestines which could result in a severe chronic intestinal disturbance and the resultant auto-intoxication. And now the importance of syphilis as well as tuberculosis in regard to the individual and each of his organs, is well recognized.

Thus in those cases of iridio-cyclitis in which there were no manifest symptoms of existent infection, and in which the result of the tuberculin or Wassermann reaction furnished the only etiological suspicions, certainly the minority was directly due to tuberculosis or syphilis. Whereas the majority was unquestion-

ably based upon auto-intoxications provoked in the manner above mentioned.

These constitutional anomalies explain why, in cases of bacterial infection of the eye, individuals react in various manners. Immunity against the pneumococcus is, for example, not a racial but an individual peculiarity. In this respect the researches which Gradle (with an entirely different object in view) recently carried through at my clinic are of greatest importance.

Gradle (31) found that in a large number of cases of irido-cyclitis which clinically must be regarded as dangerous on account of the possibilities of sympathetic ophthalmia, an increase in the large and small lymphocytes in the circulating blood, which disappeared immediately upon enucleation. Among these were cases of irido-cyclitis in which the bacteriological cause was proven, where as in others none could be shown. When one considers how early the lymphocytosis appears in these cases, in contrast to the late appearance of sympathetic ophthalmia and how nearly constant the histological signs of a sympathetic inflammation are lacking in these eyes enucleated as preventative measure (Fuchs, Arbeit, I-17), it is not fair to suppose that had these eyes not been enucleated they would have suffered from sympathetic ophthalmia. Thus lymphocytosis cannot be regarded as a specific reaction of the organism to the definite cause of sympathetic ophthalmia which has been so widely searched for and never found. According to my views the valuable evidence that lymphocytosis gives us in those malignant cases of irido-cyclitis which do not result in panophthalmitis, is merely that the organism reacts in an abnormal manner to the exciting causes of the inflammation (trauma infection). The continuation of this research, which in our cases has given very variable results, alone can confirm my views. Another supporting factor of these views was given me by O. Bail, who showed that the absence of a leucocytosis together with an excess of lymphocytes in the exudate in intra-peritoneal or intra-pleural injections of bacterial cultures, is followed by a peculiarly malignant course of the infection. Later on we will discuss the anatomical picture of the sympathetic inflammation (X).

The Cause of Sympathetic Ophthalmia (XI).

The anatomical picture of "sympathetic inflammation" which is practically identical in the primary as well as in the sec-

ondary or sympathizing eye, is regarded as a well defined anatomical entity. As there is still some question today in regard to the origin of our knowledge of this picture, I wish to emphasize that Schirmer (18) in 1892 recognized the nodular collection of round cells and the equal infiltration of the uvea resulting from the influence of such herds, as a characteristic sign of the sympathetic inflammation, in contrast to the traumatic irido-cyclitis of the purulent or pan-ophthalmitis type. Following this, Uhr (19) determined the characteristics of a sympathetic inflammation in research work under the direction of Uthoff and Axenfeldt. He emphasized the following characteristics: the enormous flat thickening of the chorioid by infiltration of principally mono-nuclear leucocytes the predilection of this infiltration for the external layers of the supra-chorioid and the large vessels of the chorioid (it is these layers that are first and most severely attacked in other forms of chorioiditis), then the progression of the infiltration through the sclera along the vessel walls and along the lymph spaces of the ciliary nerves similar to a perivascular lymphangitis. The other cellular elements present were numerous mast cells, then epitheloid and giant cells which mass themselves in the infiltrated uvea as in a tubercle.

Ruge (20 and 21) with a large amount of material amplified the clinical picture of a sympathetic inflammation, especially in individual cases. Thus, for example, in case 25 he showed the principal difference between the acute purulent inflammation and the chronic so-called fibrino-plastic (sympathetic), and emphasized that only the latter could lead to a sympathetic ophthalmia. He further emphasized the excess or almost exclusive presence of inflammation in the uvea, the thoroughly chronic nature of the inflammation, and anatomically the excess of round mono-nuclear cells, partially diffuse and partially in circumscribed round masses surrounding a blood vessel. The chronic nature of the inflammation is shown by the new formed connective tissue, at first rich in cells, later of a cicatricial nature, although containing masses of round cells. The frequent presence of epitheloid and giant cells is also spoken of.

The location of the inflammation in the uveal tract varies, first, the posterior part of the chorioid being attacked, then the ciliary region. Again the reverse is true, while in other cases the anterior and posterior parts of the chorioid are involved with the equatorial region being free. The remaining tissues of the

eye participate more or less in the inflammation. The spreading of the inflammatory process through the sclera along the ciliary arteries and nerves as shown by Uhr, is confirmed. Ruge regards the irregular inflammatory changes in the optic nerve as an expression of toxemia, and the similarity of the anatomical picture in both eyes is recognized.

In the examination of eyes enucleated on account of fresh irido-cyclitis, I could clearly differentiate two types; the purulent inflammation (vitreous abscess, complete infiltration of the uvea with poly-nuclear leucocytes and its destruction), and the fibrino-plastic characterized by mono-nuclear infiltration and the absence of necrotic destruction and the tendency toward organization (following a fibrinous exudate). In regard to the coincident presence of the two types, Ruge believes that there may be a mixed infection, a purulent uveitis, due to the usual pyogenic organisms and a fibrino-plastic uveitis due to the unknown cause of sympathetic ophthalmia; while on the other hand a fibrino-plastic inflammation may develop on top of a purely purulent inflammation of long duration. Through the examination of three eyes enucleated on account of a spontaneous irido-cyclitis, he was able to show that no marked difference existed between these and the pure traumatic fibrino-plastic inflammation.

In his conclusions, Ruge says that the transition from the fibrino-plastic uveitis, which could lead to a sympathetic inflammation, to the non-dangerous traumatic irido-cyclitis is a gradual one and that no sharp line of demarcation can be made.

E. Fuchs (17) after having described the characteristics of the purulent inflammation which he called endophthalmitis septica, gleaned from a large amount of material, confirmed the prominent findings of sympathetic inflammation of Shirmer. Uhr and Ruge, from a still larger amount of material and amplified the numerous details of the clinical picture.

By a sharp division of these details, from those of other purulent and fibrino-plastic traumatic inflammations of the uvea, he isolated the picture of sympathetic ophthalmia and classed it as one *sui generis*. Fuchs also recognized the frequent coincidence of endophthalmitis septica and sympathetic inflammation, and like Ruge, regarded it as a mixed infection of pyogenic bacteria, and the unknown cause of sympathetic ophthalmia. But Fuchs had to acknowledge as Ruge did, the close

similarity between the anatomical picture of a sympathetic inflammation and a spontaneous chronic irido-cyclitis. This he did in a publication by Ballen (22) from his clinic.

In numerous shorter articles the confirmation of the anatomical findings of sympathetic ophthalmia has been described, although the absolute specificity of the process has been doubted by Ruge (21), Kitamura (23), and in recent times by Watabene (24), and Gilbert (25).

In a recent publication Fuchs (26) emphasizes the peculiar fact that in eyes enucleated for the prevention of sympathetic ophthalmia the picture of the sympathetic inflammation is seldom found, but he does not attempt to explain this.

Fuchs presents two cases; in the first appeared a very severe sympathetic inflammation of the second eye in the face of an inconsequential endophthalmitis and still more inconsequential sympathizing inflammation of the primarily diseased eye; whereas in the second case, the sympathetic inflammation of the second eye did not appear, although a severe endophthalmitis and a severe sympathizing inflammation were proven to be present in the primarily diseased eye. For this paradox, accident is declared responsible. Fuchs himself raises the question whether he is justified in regarding the first case as a sympathizing inflammation. The answer is given that the coincidence of the traumatic etiology with the typical histological picture is decisive. But the very next phrase is "a spontaneous irido-cyclitis can cause an anatomical picture that we cannot positively differentiate from a sympathetic inflammation."

The two last anatomical researches that deal with this process Weigelin (27), Gilbert (28), do not offer any solution for these open problems. However, Weigelin regards that an endogenous irido-cyclitis simulating a sympathetic inflammation may accrue and that the second eye may become diseased from the same cause.

Gilbert (25) recognizes that the developed sympathizing inflammation presents a characteristic histological picture entirely different from the equally characteristic endophthalmitis of Fuchs. Between these two occur many border cases which makes it impossible to recognize anatomically the sympathizing inflammation without knowledge of the clinical course of the case (XII).

Gilbert (28) further maintains that the character of the

inflammation, especially the excess of the mono-nuclear infiltration over the poly-nuclear or vica versa, give no determining points in regard to the nature of the cause, but is merely a measure of the severity of the inflammation (thus, the virulence of the destructive influences causing the inflammation or the character of the reaction of the tissues). *The more chronic the character of the inflammation, the higher is the lymphocytosis.* All the recent authors accept as positive the mycotic theory of the sympathizing as well as the sympathized inflammation and they all agree with the exception of Gilbert that the latter is a sympathetic process. But none of them attempt to explain anything about the details of this process, about why this mysterious cause of infection must produce an extensive inflammation in the sympathizing eye before it can gain admittance to the second eye and there cause an inflammation, about the nature of the cause of this infection, or about the reasons for its absolute specificity for the uvea, which, like other organs, is composed to a great extent of blood vessels. Fuchs (26) only has to explain that the anatomical process of the sympathizing inflammation in the injured eye may run a chronic course of many years' duration and attempts thereby to explain those cases in which a long interval exists between the primary injury in the sympathetic ophthalmia.

Fuchs attempts to explain why metastases into the second eye do not result immediately, by saying that the inflammatory process which the micro-organisms have caused in the first eye, in the beginning is too slight to be transmitted to the second eye and that this metastasis to the second eye occurs only when the inflammation has reached a high degree or by an acute exacerbation. These views are not comprehensible in the light of microbiology as it is now understood. Whether the infection breaks into the blood stream and thereby metastases or not, is not determined by the severity of the reaction that the micro-organisms cause at the port of entrance, but is solely dependent upon the growth of the micro-organisms and Fuchs contradicts his own views in his second publication by demonstrating a case in which there was a very slight degree of sympathetic inflammation in the enucleated eye and nevertheless sympathetic ophthalmia appeared nineteen days after enucleation. Recently Gilbert (28), in order to explain the why and the time of transmission of sympathetic ophthalmia, came out in favor of Motais's theory (Elsching (2)) of the migration of the micro-organisms from

the first eye along the facial veins into the second eye and attempted to support it by some beautiful injection experiments. It now becomes necessary to go more deeply into the literature of sympathetic ophthalmia.

Roemer (29) collected all facts that spoke for the mycotic etiology, for the absolute specificity of the cause of this disease for the uvea, and finally for the metastatic production of sympathetic ophthalmia. But this theory encountered one difficulty, namely, that non-perforating trauma, as a sub-conjunctival traumatic rupture of the sclera, may cause a sympathetic irido-cyclitis. Schirmer (18) says that non-visible tears in the conjunctiva are the port of entrance for the virus of sympathetic ophthalmia. Moreover, a non-perforating intra-ocular sarcoma may also result in a sympathetic irido-cyclitis, and Braley and Schirmer (18) call this a severe blow to the mycotic theory.

Herfort (30) also advances the view that sympathetic ophthalmia may result from non-perforating injuries and orbital sarcoma in that miliary tears in the conjunctiva allow the micro-organism to penetrate into the interior of the eye and that this penetration may occur a long time after the primary injury, indeed after a complete phthisis bulbi has appeared.

Meller (32) advances not a new, but a general assisting theory, to explain these numerous contradictions. But Schmidt-Rimpler (32) had already regarded as probable that sympathetic ophthalmia is due to an infection by organisms which happen to be in the circulating blood, thus an endogenous infection.

Meller (33) accepts as definite that sympathetic ophthalmia is a specific disease, "just as the tubercular or syphilitic infiltration is caused by a definite virus." It is a disease that is completely different from all other forms of uveitis. He believes it is caused by certain definite organisms and he attempts to show not only their nature but how they get into the primarily diseased eye. But Meller interprets altogether too freely the clinical and experimental facts which would seem to speak for his *a priori* views. On the basis of an absolutely incomplete clinical history, the anatomically examined case of sympathetic ophthalmia following chorioidal sarcoma is elaborated as follows. In an eye blind for seven years before the enucleation, which followed on account of painful irido-cyclitis, sarcoma and subsequent blindness, "there must have been at one time a severe

plastic inflammation," and that this inflammation "was caused by a necrosis of the then existing tumor." The tumor cell rests became enclosed in a hard capsule, but eventually penetrated it. "The uvea which had not been affected by the sarcoma succumbed to the sympathized infiltration." Meller easily comes to the conclusion that "the infection of the first eye (with the virus of sympathetic ophthalmia) in this case occurred endogenously. Yes, the presence of an inflammation absolutely characteristic of the sympathizing types and therefore characteristic of a peculiar specific infection in those parts of the uvea unaffected by tumor in an intact bulbar capsule is "an undeniable proof" of this theory.

Meller advances a step further in attempting to prove the fact that a previously healthy eye could never suffer from a sympathizing inflammation, "for the organisms circulating in the blood are not capable of developing their growth in the uvea of a healthy eye." The influences which permit an eye to be attacked by a sympathizing inflammation are in addition to the inflammation caused by a perforating injury, a direct traumatic lesion of the inner eye, as well as intra-ocular sarcoma, in consequence of which there exists an irido-cyclitis usually before the beginning of the sympathizing inflammation. Thus the infection with the cause of a sympathizing inflammation does occur endogenously in those cases where the bulbar capsule is intact, as well as in those cases in which the sympathetic ophthalmia appears years after the injury. But as a precautionary measure Meller does not deny that occasionally the organisms may enter directly into the injured eye. However, he regards this as the exception. This convenient explanation is found for all of those unpleasant questions in regard to the elapsed period between the sympathizing inflammation and the primary injury; in regard to the frequency of eyes which clinically are capable of suffering from sympathetic ophthalmia and the confirming anatomical findings; in regard to the localization of the sympathizing inflammation, which so frequently is in the posterior parts of the eye, while the anterior parts are unaffected; and finally in regard to the apparent absence of irritation of phthisical eyes which, however, do frequently lead to sympathetic ophthalmia.

(To be continued.)

REPORTS OF SOCIETIES.

THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY*

INDIANAPOLIS, INDIANA, SEPTEMBER 25, 26, 27.

The Vice-Presidential address was delivered by Dr. F. Park Lewis, of Buffalo, Chairman of the Ophthalmic Section. He presented for consideration three quite different and dissociated ideas:

First, the arrangement and adjustment of the results of the physician's daily work, so that they may produce the highest degree of efficiency. While individually much time and care are expended in recording observations, if it is wished to aggregate the records concerning a certain group of cases of like character, in order that results may be compared or that they may be utilized for publication, the task is of such difficulty that it is usually given up as hopeless and these records of incalculable value are useless because of their inaccessibility. The modern system of card index makes it possible to have these records accurate, complete, specific and available. It is required simply that a uniformity of system of record-making be inaugurated and generally adopted. Thus in a search for rare or for exceptional conditions—which are often the key to important facts, the student would have at his disposal the observations of all of his colleagues without the embarrassing necessity of asking them to take valuable time in studying their old records for his convenience. It would be of great practical value if the wealth of material now locked up in inaccessible records were opened to the profession, and this could be accomplished simply, easily and inexpensively by a uniformity of method, a central clearing house and an open door. Dr. Lewis suggested that a committee representing the largest clinics be appointed with a view to securing some such uniformity of record making, with if possible, a systematic presentation of adequate details.

The second consideration of the address was social, relating to the responsibility of the physician, as the sole member of the community having knowledge of certain essential facts, upon the promulgation of which the welfare, health and happiness of one's neighbors depend, and the duty to make known these facts. Referring particularly to ophthalmia neonatorum, it was said that the essence of the matter lies in publicity. The departments

of health must proclaim as they would the existence of small-pox, that the effects of gonorrhoea are not transitory; that marriage while the gonococcus exists in the genital tract of either parent is a crime that will demand ultimately the surgeon for the mother, and that it makes babies blind; but that it is curable; that infections from this cause may be prevented in the eyes of the infant; that early and competent hospital care should be secured when ophthalmia neonatorum has developed; that prophylaxis and treatment should be provided by the state as an economic necessity, and that this be made a reportable disease, and that such reports be insisted upon. Also it is most unwise to compel myopic children to go through the same curriculum and under the same conditions as those followed by children with normal eyes. Special classes for these should be established. The necessity of ophthalmologists identifying themselves with movements looking toward the conservation of vision is becoming more and more apparent.

The third topic considered was the physical basis, through the sense organs, and more particularly those of sight and hearing, of our position in space and consciousness of time. Almost all of the important observations in this field have been made in the laboratories of the physiologist and of the pathologist, and the reasoning upon which such vital conclusions depend is that of the psychologist and of the philosopher, while the clinician, to whom this field is of the highest practical value, has scarcely touched upon its outer edges. If it be true, as has been practically demonstrated, that as it is the harmonious blending of the psychic impressions which come from the sense of hearing and that of sight that we maintain our equilibrium and spacial sense, it naturally follows that a dissociation of this adjustment will disturb our relationship to our surroundings and will produce a tendency towards those conditions which would exist if this inhibitory control was not maintained, such as palor, lack of muscular control, together with a dullness of the sense of hearing and frequently a tinnitus or sense of stuffiness in the ears. An astigmatism in which there is asymetry of the angles or a ciliary fatigue will make difficult or impossible the blending of images which must psychically synchronize with the labyrinthine impressions to give us our proper special relationships. Failing this, the symptoms complex of Meniere's disease is presented. It is evident that when abnormalities or dissimilarities,

structural or functional, exist in the eyes, through whose harmonious action we have stereoscopic vision; or the ears, by which we become conscious of the actual existence in space of things that we see, that this disassociation of physical impressions necessarily produces psychic disharmonies manifested by a wide variety of physical disturbances and manifestations which have an important bearing not only upon the psychology and physiology of every human being, but from the physiological conditions involved give a remarkable and scientific basis in explanation of our orientation in space and aid in the solution of one of the most important problems in philosophy of the universe. The verifications of this need simply to be looked for from the standpoint of the practical clinician; we need only to gather them together and to arrange them systematically to realize their importance. The Academy could no more profitably concern itself during the coming year than to supplement the work that is being done by the physiologist, the psychologist, the neurologist, the mathematician and the philosopher, the comparative anatomist and physicist in the study of this important field, thereby adding clinical demonstration which would be of even greater value and more fundamental importance than that of the others.

Auto-Toxemia in Ophthalmic Surgery.

Samuel D. Risley, of Philadelphia.—Dr. Risley said: The surgeon should not forget that in every great city clinic a considerable percentage of the patients applying for treatment come from infected and infecting eddies of population, reeking with odors from soiled clothing, unwashed bodies, blocked up skins, infected alimentary tracts and diseased mucous membranes. To admit them to the wards of the hospital without adequate precaution is fraught with peril to others; to prescribe drugs which they are too poor to purchase; or to administer medicine which cannot cure their degeneration, which is their disease, is useless. The cases are not rare before whom the hospital surgeon must feel a sense of helplessness because of the complex social problems which must first be solved before he can be helpful. The speaker was impressed very early in his career by the relatively better results secured in private than in hospital practice, notwithstanding that the latter was done under a better sanitary equipment, and he found the explanation in the unsanitary condition of the hospital patient. The careless habits, the unsanitary dwellings, and the gross, uncleanly and improperly prepared food, favor

the cultivation of an abundant intestinal flora which, together with their toxic products, are doubtless the origin not only of many unclassified forms of general ill health, incipient cardiovascular disease etc., but of the so-called endogenous infections which so frequently undo the work of the surgeon in spite of local antiseptic precautions. In addition, it must be remembered that the chronically diseased naso-pharynx and contiguous sinuses so common among these people, and their universally neglected oral cavity, with ulcerated gums, stumps of decaying teeth and necrotic alveoli, furnish a most fruitful source of local infection of the conjunctiva and may often be the origin of suppurative disease of the cornea and infection of wounds after operation. The fact that convalescence is so frequently uneventful after the removal of cataract, e. g., until the dressings are removed, is suggestive. The condition of the mouth and naso-pharynx in which microbic colonies revel undisturbed, renders it almost certain that these infecting bodies are sprayed from the mouth and nostrils into the atmosphere of the ward and are carried by the fingers of the patient to the bedding and dressings, and thence to the eye after the bandage is removed. It is important, therefore that the surgeon should improve the sanitary conditions of the patient before undertaking any operative interference, and not the least important of these is the cleansing of the nostrils, mouth and pharynx. The freeing of the alimentary tract of noxious contents by free purgation is a matter of routine practice with most surgeons.

While the extraction of cataract must always remain a capital procedure to the ophthalmic surgeon, the essayist thinks that too much attention is sometimes given to technique and too little to the etiology of cataract and the general condition of the patient. The qualifying term "senile" cataract has called attention from a due consideration of the underlying pathologic factors. The term "senile" should be eliminated, and all opacities of the lens regarded as pathological. A routine study of all cases of incipient cataract reveals a surprising frequency of a group of significant objective and subjective phenomena. There will be a history of asthenopia which has disappeared with the physiologic loss of accommodation; the fundus will show the scars resulting from years of eye strain due to some uncorrected anomaly of refraction or binocular balance. But more significant are the signs of wear and tear of life. In some measure the incipient stages

of blood vessel disease, are discovered and the measures which should be adopted for its arrest and relief. The discovery of the spirillum has thrown a flood of light upon the probable pathologic processes in many other forms of disease. Much may be said with regard to tuberculosis, influenza and the exanthemata, especially measles. Many obscure diseases may likewise be explained by microbial infections originating in the alimentary tract. It is well known that there is an important relation between many forms of eye disease and the rheumatic or gouty diathesis. The impaired health, high tension pulse, traces of albumin and the presence of indican in a urine of high specific gravity and a blood pressure often as high as 200 mm. of mercury are not promising conditions under which to undertake so serious an operation as the extraction of a hard cataract, which, when all is said, is secondary to the disease of the fundus oculi, and the retino-chorioidal affection only one of the local manifestations of the general cardio-vascular disease. The eyes have suffered only in common with the kidneys and other organs of the body and need the ministrations of a surgeon who is first and foremost a wise physician. It is far better to defer operation until the alimentary canal is freed of its microbial and toxic contents, the urine of normal specific gravity and free from indican, albumin and excessive acidity, the blood pressure approximately normal. This will rapidly be secured under the daily or tri-weekly administration of some of the soluble alkaline earths, the essayist's favorite being the chloride of calcium in 5 gr. doses three or four times daily. If the blood pressure is high, nitro-glycerine is helpful. In private practice, the analogues of these hospital cases is furnished by women after middle life who have passed through the stress of the social whirl, or by men worn to the breaking point by the anxieties and responsibilities of great business enterprises or by the physiologic vices inseparable from dissolute living. Increasing experience serves only to emphasize the gravity of cardio-vascular disease. In its worst phase, that of hemorrhagic glaucoma, its hopelessness grows out of the fact that the arterial disease is already so far advanced as to promise a speedily fatal result.

DISCUSSION. Dr. Wendell Reber, of Philadelphia, said that the profession is indebted to Dr. Risley for having driven home the fact that the majority of cataracts in old people are, in a sense, chorioidal cataracts. That is, the average cataractous eye is a sick eye. If the person's metabolism were right

and normal for his time of life, in all probability he would not develop cataract. It would follow that the cataract is, in a sense, a secondary cataract in the vast proportion of cases. The "good" senile cataract the old authors talk of—those that will get well no matter how or by whom operated upon—are cases which are the delight of every one. There are people who seem physiologically to grow old without presenting any peculiarity, who develop cataract, but these are comparatively rare. The dicta laid down by Dr. Risley will hold good for the whole country. It is the outgrowth of our life conditions, the things he so beautifully calls "physiologic vices." The patients with a good condition of the nose and its sinuses are those who give kindly healing. As to internal treatment prior to the operation, calomel is a gift of the gods, to be followed up, in the majority of cases, by a protiodide or biniodide of mercury, where there are any lurking conditions in the blood as the result of lapses, or where passed on to other members of the family. The object is to raise the vital condition of the patient where it is evidently below the normal healing point. The speaker said in his own cases where he fears infection he instills 20 per cent argyrol into the conjunctival sac.

Dr. Lucien Howe, of Buffalo, said that the lens is often found to be tipped forward and a little out, and that the condition of cataract probably had something to do with this position of the lens.

Dr. John Stuckey, of Lexington, Ky., said that the relation of the systemic conditions or faulty metabolism is just as true in regard to the ear, nose and throat. Dr. Risley's paper emphasizes the duty of the Academy and the medical profession to enter a campaign of education to prevent so many of the conditions that have to be contended with. Too many people have chorioi-ditis, diseases of the conjunctiva. These diseases are not always due to specific infection, but are often the result of a systemic condition which disturbs or impairs metabolism. It is not so much the trace of albumin in the urine that gives concern, but the indican, the blotchy skin; and the diseased conjunctiva is the effort on the part of nature to do what the alimentary canal, the skin, the kidneys, etc., have failed to do.

Dr. F. Park Lewis, of Buffalo, said this valuable paper emphasizes the imperative necessity of the specialist being before everything else a physician. The best results can not be effected by following along narrow lines. The thought of the day in

every line of investigation is to get down the underlying cause—why things exist that do exist. The work which is done in the clinic should much of it never need to be done, and emphasizes the necessity of physicians coordinating their work with that of the social worker.

Dr. Risley, closing the discussion, said that the medical profession today is guided by the best underlying principles of sociology. Referring to local measures, unless there is increase of tension he invariably gives a more or less prolonged use of mydriatics. Many patients have headaches or cracklings in their heads, the conjunctiva is red and itching. These symptoms rapidly disappear under a treatment of a few days or weeks of a solution of homatropine and a washing of boracic acid, 4, 6, 8 or 10 grains to the ounce, and vision markedly improves. Dionin is used as local treatment where the eyes are painful.

Ophthalmia and Trachoma in the Mountains of Kentucky.

Dr. J. A. Stucky of Lexington.—The speaker, impressed with the fact that for more than a quarter of a century so many of the patients coming from the interior of the mountain region of Kentucky had trachoma, had determined to personally visit this region and investigate the cause; the result of this excursion was presented to the Academy for discussion and advice. Attention was called to the simplicity of the native, who is unlettered rather than ignorant; he knows nothing of sanitation, nothing of hygiene. It is rare to find a family of so few as eight children. The average house is a rude hut, about 14x16 feet, and without a window. The average native is underfed, insufficiently clothed and does not use the water in the creek as often as he should. These people all have a marked degree of asthenopia or weakened accommodation for near vision. Many of them are hyperopic. Few in the first or second stage yield to treatment unless with a plus lens. The conditions are appalling. Lids actually burned off, could see nothing but a slit. Trichiasis, entropia, iritis, perforation of the cornea. One morning there were eleven women, seven with nursing babies, sitting in front of the tent with a bandage over the eyes, and the tears from these typical trachomatous eyes dripping down into the eyes of the babies. All told, in three clinics 398 cases were seen. There were enlarged tonsils and adenoids galore. There was a long list of the cases of entropia, cicatricial tissue, trichiasis, ulcerated cornea, the sequelae of ophthalmia, ground glass cornea, pannus etc. The first thing to do in many cases was to clean them up.

then do a canthotomy, turn the lid out and go after the cornea with the proper remedy—the silver preparation first, then atropin until the effect is gotten, then dionin frequently repeated. The solution of the question is through the children. It is a matter of education, of salvation. The disease is a reproach to ophthalmology. Why has not the specific germ been found? Is it a filth disease? Is it a disease of low vitality? Many slides have been sent to the Russell Sage Foundation and much is hoped from their report.

DISCUSSION. Dr. F. Park Lewis, of Buffalo, stated that two years ago word had come to him that the mountains of Kentucky were the breeding places of trachoma, and after paying a visit there it is evident that Dr. Stucky has only given a mere suggestion of the conditions. There is tuberculosis all through the mountains, gonorrhoea is rife and all the consequences of it, and these people mingling together for many miles around. Notwithstanding the restrictions placed on emigrants there is still a large amount of trachoma in New York. Philadelphia has an institution for the treatment of this disease. It is hoped that some suggestion will be made through which the proper authorities will supplement the splendid work carried on by Dr. Stucky and his nurses in the vicinity of Lexington. Measures should be taken not only to protect these people but the whole United States from the infection they are carrying.

Dr. Risley, of Philadelphia, recommended a campaign of education by those who are able to help in the work begun by Dr. Stucky. The speaker's method is a rolling operation, putting the patient to bed for 48 hours. They will get well rapidly if this is thoroughly done. When discharged from the hospital he gives them to use at home a 20% solution of the acetate of copper in glycerin. Two drops of this in 20 drops of water in the eyes three times a day. The speaker is opposed to the use of nitrate of silver except in the early and catarrhal stage. In severe pannus after the rolling, a solution of tannin and iodine is used.

Dr. Geo. F. Keiper, of LaFayette, Ind., criticized an article in a recent journal which had said that trachoma is a disease not so contagious as supposed.

Dr. H. G. Sherman, of Cleveland, said the question was not one of sulphate of copper and of silver, but the admission of God's sunlight and God's air. It is a case that has been recognized ever since Egyptian ophthalmology was known. All text

books say that trachoma is due to lack of nutrition. These people are of the finest type in America and it is in these mountains that you find the true southern hospitality. A sentiment should be aroused throughout this country that will make men go down there and teach them how to live. They do not know how to farm. There is a small college in the mountains of the Cumberland, maintained by a group of men in Cleveland, where these things are taught. There is work down there for men ready to give their time and their skill to the suffering, and men so happily situated as Dr. Lewis can direct a propaganda through the North that would be of great service to these people, and it seems that that is the way to approach it.

Dr. Williams of Peoria, referring to the copper sulphate, said it rapidly decomposes after the glycerin has been added to the water and must be made fresh each time. The strength must be graduated in accordance with the tolerance of the patient.

Dr. Stahl of Oklahoma said that the Government is taking care of a like condition among the Indians there.

Dr. Stucky, closing the discussion, said he considered the copper solution one of the best remedies to be had. This question must be delicately handled by any one who goes down there. It is the feud district and these people are profoundly sensitive and superstitious. He is gradually gaining the confidence of these people, and now instead of bringing one child to try him on they bring the whole family, and little by little he expects to accomplish something. He spoke of the courage and heroism of his corps of nurses. He regretted no suggestion had been made as to how to look for the germ of infection. It is a question of education, and of isolating this germ and finding its specific.

Some Surgical Procedures in the Management of Old Trachoma.

Was the title of a paper by Dr. Thos. Faith, of Chicago. He advocated the excision of the tarsus with the overlying conjunctiva as a radical cure for the disease, and the early application of the Hotz entropion operation. Excision or resection of the tarsal cartilage with its overlying conjunctiva is a perfectly safe and rational procedure, easy to do and having no unpleasant sequelae. It is indicated in all cases of old trachoma which have a history of recurrence, whether or not accompanied by pannus and corneal infiltration. Several important

points to be observed in the operation are: The first incision at or above the orbital border of the tarsus must pass through the conjunctiva only, for if it is made deeper, Mueller's muscle may be injured. Second, it is important to thoroughly undermine the upper margin of the wound, making a careful dissection, and thus emptying any follicles which may inhabit the subconjunctival tissue at this point. Third, the incision at the lid margin must be a smooth and regular one. Fourth, in the dissection of the tarsus the scalpel or scissors must hug the cartilage in order to avoid injury to the orbicularis. Fifth, the sutures must be carefully and accurately placed to get perfect coaptation, and must not be drawn too tight. In the matter of the first incision, most of the conjunctiva of the retrotarsal fold can be saved, and at the same time the disease can be eradicated in this locality by a free dissection of the conjunctiva of the cul-de-sac, as the follicles in this locality are principally subepithelial. In the placing of the sutures, if the knots are tied on the inside the lids they are apt to irritate the cornea, and, too, the lid must be everted in order to remove them, this is difficult after the removal of the tarsus and may tear open the wound. The operation should not be done until the cornea begins to appear smooth along the lid margin, as this must be left in order to preserve the contour of the lid. An eye should not be operated on by this method when it is in an active stage of inflammation with free secretion. Any ulceration of the cornea, unless of a very superficial or marginal type should be cause for postponing the operation. Pannus is not a contraindication. A plea was made for the early performance of the Hotz entropion operation, as it will prevent the disagreeable effects of entropion and the permanent damage which it frequently does.

DISCUSSION. Dr. Geo. F. Suker, of Chicago, said: The majority of men have some hesitancy in sacrificing the tarsus because they think it necessary for the maintenance of the contour of the lid and the position of the ciliary, but this is only partially true; as long as the border is left, as described by the essayist, the lid will not evert, there will be no entropion, and by the early excision of the tarsus a large amount of pannus will be prevented. There will still be enough cicatricial conjunctiva to restore a good lid without deformity. The essential feature is the placing of the stitches. The results of Dr. Faith's operation, which the speaker has watched for seven years, are good.

Dr. W. B. VanNote, of Lima, O., said this is the best operation for the treatment of old cases of trachoma in the adult. It is necessary to treat these patients four to six weeks in order to get good results. A solution of 1 to 500 bichloride should be used to wipe the insides of the lids, where a granular surface springs up.

Dr. Faith, closing the discussion, said the treatment should be carried out until the lid is in good condition.

Visual Requirements of Engineers—Some Results of Agitation.

Dr. Henry Young, of Burlington, Ia.—This paper was a review of the progress made in a crusade to secure recognition of the importance of systematic examination of the eyes of trainmen and consideration of some of the by-products, notably the influence of state laws looking to such regulation. In Montana, e. g. head lights on all road engines must be no less than 1500 c. p., measured without reflectors; in Indiana the law authorizes the board of R. R. commissioners to act in this regard, and this board has ordered electric headlights on all road engines. A commission of 25, of which the essayist was a member, was assembled in Indianapolis in September for the purpose of making observations on the comparative value of oil, acetylene and electric head-lights, the report of which was to be the basis of injunction proceedings before a Master in Chancery. It was the feeling of the essayist that this test lacked in completeness in that the matter of fatigue was not considered, together with other matters. A great deal can be said for and against the electric headlight. The majority of engineers prefer it. There is undoubtedly a sub-conscious feeling of safety to them behind a light that so fully illuminates the track, self preservation being the first law of nature. There is sometimes difficulty with the impinging of the rays of the side signals which are not illuminated, and "phantom lights" result, which is the objectionable point. Except on double track railroads between stations this can be wiped out, as the engineer with a turn of his lever can shut off his light. The railroads have ahead of them only the safe and efficient operation of their roads, and can be depended upon to work out what is most practical. For the fast moving trains the electric light has a great advantage, while the slow moving trains may just as well have the smaller illumination. Most ophthalmologists are equipped with both gas and electric lights in

their offices, and the speaker prefers the yellow light for the study of certain intra-ocular conditions, as it shows more of the details of the fundus.

DISCUSSION. Dr. Black, of Milwaukee, said that the results of the office test of men and tests in the field do not compare at all, the latter bringing out facts not discovered by the former. Men apparently safe in office tests are not at all safe on the road, and vice versa. Illuminating engineers have determined that yellow rays penetrate obscured atmosphere to a greater extent than do the violet, and this is the reason the oil is used in the light houses, or, if acetylene, the amber glass is used.

Dr. Young, closing, said that the results from this, as from other agitations for measures looking to the general welfare, are but partially compensatory, and when one considers the supicions held by some that the motives have not been wholly disinterested, a comparison is inevitable between the prohibition of unsolicited service to the individual and the approval of a similar service to the aggregate. All the modern measures in an altruistic line would have more cordial support were it not for the fact that in every one of them there appears to be sufficient material gain to the medical man to rouse public suspicion. The medical profession are the only people on earth who have done anything to make life or health more secure, and it is proper to say so, and in opposition to the establishment of a National Board of Health they have to contend with the fact that a cabinet officer and his subordinates are to have desirable salaries. Under these circumstances it is not strange that the League for Medical Freedom should include some people of real influence.

Cataract Extraction With Corneal Suture.

Was the title of a paper by E. C. Ellett, of Memphis, Tenn., who gave a history of the different methods that have been used for suturing the cornea after or during the operation of cataract extraction, giving special attention to the method by Prof. Kalt, according to whom the suture is indicated in all cases of cataract, senile or otherwise, not complicated with adhesions of the iris to the lens capsule. It is especially indicated in young subjects. The objections urged to the operation are the difficulty of passing the stitch and the danger of cutting it with the knife. Kalt cuts it in but 1% of cases, and with a little skill it can be placed again in the same tracts. The essayist reviewed twelve of his own operations in which the suture was used, and

said it is surprisingly easy to insert by any one with the necessary skill for ophthalmic surgery. In tying the suture he makes a double turn, securing the knot against slipping. By drawing it tight enough to secure slight wrinkling of the cornea, one is assured of approximation of the wound edges. In spite of this the suture in one case was found to be untied at the first dressing. The objection of some authors that the removal of the stitch requires a second operation is not practical, and in none of the essayist's series of operations did the stitch cause the slightest irritation. The scar left by the stitch is a minute vertical one and constitutes no objection to the operation. While not advocating the stitch as a routine step in cataract operations, it is a valuable addition, whose advantages outweigh its disadvantages.

In the discussion, Dr. Risley, of Philadelphia said that he saw Prof. Kalt do this in his clinic eight years ago and has been doing it himself ever since in every case where he had any doubt about the obedience of the patient or the probable loss of vitreous from any cause. In cases where a bead of vitreous follows it is a great comfort to take hold of these loops and draw them up and see the vitreous sink back into the eye.

DISCUSSION. Dr. Sherman, of Cleveland, asked if this stitch would not be practical in cases of glaucoma where large iridectomies are made with increased tension and escaped vitreous.

Dr. J. M. Ray, of Louisville, said the operation required a short, heavy needle without any spring to it.

Dr. E. G. Stueber, of Lima, O., said in an ideal operation this suture would not be necessary, but might be appropriate where a wound gaps slightly.

Dr. Wendell Reber, of Philadelphia, said if any gentlemen present could tell in advance when he was going to do an ideal operation, he would bow low and take off his hat to him. Those expected to be ideal sometimes behave badly; and others, approached with fear and trembling, come through safely. The ideal extraction is only to be so pronounced when you have gone home. There is nothing like this suture to let a man go home with a contented feeling if there has been threatened prolapse. He told of a little glass cornea he had devised, somewhat like a watch crystal, which keeps the cornea in position.

Dr. Ellett, closing the discussion, said that the claim made

in favor of this procedure was safety in making the toilet of the wound, the removal of corticle etc. He had no knowledge of its use in glaucoma. He advised not telling the patient the stitch was there until ready to remove it, when there is usually no difficulty.

Operations for Cataract Upon the Eyes of the Very Aged.

Dr. Geo. F. Keiper, of LaFayette, Ind.—He said that cataract operations on persons who have reached the age of 90 or more are very rare, and especially is this true of persons who have reached the century mark. Very aged persons are to be handled with great care, surgically and otherwise, but when thus handled, so far as cataract is concerned, many have responded to operative interference with surprisingly good results. Yet age is a relative term, for some seem young at ninety and others old at forty. Before operating on these old people for cataract, in addition to the usual precautions the following are urged: A very careful eye examination; a very careful and complete physical examination extending over several days of fairly constant observation. Preliminary iridectomy seems to be indicated in every case. The patient should be kept upright at all times possible to avoid hypostatic congestion of the lungs. Keep unbandaged the eye not operated upon. All aseptic precautions must be most rigidly carried out.

Dr. Keiper had operated on two aged people for cataract; the first a man of 93, without preliminary iridectomy. In three days a violent pan-ophthalmitis, and prompt enucleation. In a few days a fire in the hospital broke out, and the patient when found was nearly suffocated. He had torn off his bandages in his attempt to gain safety. He gradually sank and died despite all treatment. How much was due to the pan-ophthalmitis and enucleation and how much to the fright and shock he endured was not obtainable.

The second case was a woman in her 101st year, of remarkable intelligence and vitality, physically and mentally. Every precaution was taken and a preliminary iridectomy done. Healing was prompt in both operations, the resultant vision 20/L. with a plus 10.00 lens. With a plus 14 D. lens she was able to read No. 3 Jaeger. Though she lived but six months she was a very happy woman, dying as a result of the excitement attending her 101st birthday celebration. The conclusion reached by the essayist is that if the very aged person is in good health

physically and mentally, a cataract operation should not be denied him if all is favorable for a successful result. Of course the operation should not be undertaken unless there is good hope of useful vision.

DISCUSSION. Dr. Young, of Burlington, said that few people lived to be 85 years old without a cataractous process in the lens.

Dr. J. W. Seales, of Pine Bluff, Ark., said that if at the very first intimation of post operative irritation one ounce of the saturated solution of magnesia with a pint of hot water is used as a sponge bath, at the same time administering by the mouth 1/100 gr. strychnia and 1/100 gr. veratrine, all irritation will pass away. If this treatment is intelligently carried out for 20 or 30 days, watching the pulse as a guide, in interstitial keratitis, the result will be such that the physician will doubt his diagnosis.

Dr. Thompson, of Indianapolis related the case of an old soldier 88 years old, both eyes operated for cataract, living to be 106 years old, who could see to read his newspaper up to his death.

Dr. Albert Bulson, of Ft. Wayne, said he had favorable results in the few cases he had operated in the very aged, but he does not use the preliminary iridectomy and does not see why these people should be subjected to this double operation. He has sometimes used the "open" method of Seales and Hess with good results, allowing the patient to sit up in bed and use the eye soon after the operation. The possibility of injury to the eye must be guarded against by pinning down the sleeve to prevent reaching with the hands.

Dr. Keiper, closing the discussion, said he knew many people at the home and in private practice, over 90 years of age and without cataract.

Uveitis (and Decemetitis in Particular) and Its Probable Relation to Nasal Obstruction.

Was the title of a paper by Dr. Wendell Reber, of Philadelphia, who said that the etiology of low grade, nearly non-inflammatory forms of decemetitis, has been involved in much obscurity. These cases have commonly proven rebellious to treatment. Latent nasal obstruction has from time to time been mentioned as a possible etiologic factor, but this belief has not been generally accepted. The author reported a series of cases in which conjoint treatment of the nasal mucosa and

the ocular condition produced relief and a cure much more promptly than by the usually accepted measures. He concluded that the association of nasal and sinus disease with anterior uveitis, on the basis of the clinical evidence thus far offered, seems altogether likely; that constitutional dyscrasias may co-exist and complicate the idea of the etiology: that syphilis, tuberculosis, gonorrhoea, rheumatism and autotoxemia ought to be excluded by modern laboratory methods before sinusitis can be properly said to be causative; that the most careful exploration of the upper tract should be resorted to in every case of uveitis, and that even in the presence of seemingly negative rhinologic conditions, intra-nasal and general measures that deplete the nasal mucosa to the greatest extent are to be recommended, as they certainly tend to shorten the duration of the uveal disease, and, when it has a tendency to become recurrent, may result in shortening subsequent attacks.

DISCUSSION. Dr. Keiper said he always makes it a rule to examine the nose. He had two cases of uveitis benefited by the removal of the tip of the middle turbinate, and had thought the result came from removing the pressure on the nasal nerve.

Dr. Gradle, of Chicago, said these cases were quite frequently bilateral.

Dr. Risley, of Philadelphia, said the paper was a fair illustration of the extreme complexity which the etiology of disease has taken upon itself with modern methods of research and the broader outlook in the manifestation of disease. Attention was called to the fact of deformities in the anterior segment of the skull as creating a liability to these things, as they impair the free drainage from these sinuses.

Dr. Reber, closing the discussion, said that cases of uveitis should not be put down as syphilitic, tubercular etc. until proven such by modern laboratory methods.

The Crystalline Lens as Figured in the Text Book, and as Seen in the Eye.

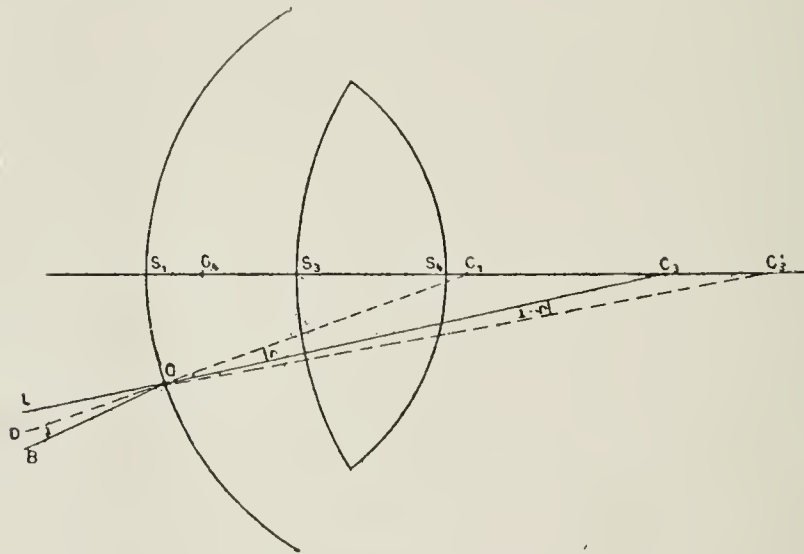
Dr. Lucien Howe, Buffalo, N. Y.—It is ordinarily supposed that the crystalline lens occupies the ideal position represented in the text books, that the axis of the lens passes through the center of the cornea, and that the vertical and the horizontal diameters are exactly at right angles to its axis. Moreover, we usually take it for granted that during the act of accommodation the two surfaces of the lens become more convex, always in an equal and regular manner.

The object of this paper is to call attention to the fact that most of these assumptions are not warranted, at least not in the majority of what we call normal eyes.

This statement naturally divides itself into the consideration of four points which are:

I. The instrument for viewing the reflections from the two surfaces of the lens, the phacometer.

Attention was called to the fact that the phacometer is nothing more than a good telescope with appliances for measuring the positions which the entoptic images have with relation to each other, and the changes which those images undergo during the act of accommodation.



The ordinary ophthalmometer can be transformed with slight modifications into a phacometer.

A model of the Tscherning's phacometer was shown with the modifications of it made by the writer. This consisted in an erecting eyepiece, and in a head rest suitable for this and for many other examinations of the eye. This phacometer is figured in Tscherning's *Physiologic Optics*, page 44, fig. 32, and also in the article by Besio in the *Journal de Physiologie et de Pathologie generale* Juillet, 1901, page 548. A copy of the latter is here given.

II. Formulas for calculating the position of the lens, and the changes which it undergoes.

It requires ordinarily a rather long and tedious computation to calculate the position of the surfaces of the lens from the reflections. These calculations can be much abbreviated by the use of certain formulas used by Tscherning at the Sorbonne, and

afterwards in other ophthalmological laboratories. In these formulas

(A) represents the distance of the single light from the axis of the telescope;

(B) the distance of the double light from the axis of the telescope, and

(C) the distance of the fixation point from the same light as each of these three objects move on the arm which crosses the center of the telescope.

The distance measured within the eye are shown in Tscher-ning Fig. In this S1 S3 S4 represent respectively the anterior surface of the cornea, the anterior surface of the lens, and posterior surface of the lens. C1 C3 C4 represent respectively the centers of curvature of those surfaces.

With this understanding we have the following formulas:

$$\text{S1 S3 or P} = \text{R1} \frac{\text{A} - \text{B}}{\text{A} - \frac{1}{4} \text{B}} \quad (1)$$

(B) For the distance of the center of curvature of this anterior surface behind the front of the cornea we have

$$\text{S1 C3} = \text{R1} \frac{\text{C} + \frac{1}{2} \text{B}}{\text{C} + \frac{1}{8} \text{B}} \quad (2)$$

II. For the posterior surface of the lens

(A) For the position of this surface we have

$$\text{S1 S4} = \text{R1} \frac{\text{A} - \text{B}}{\text{A}} + 0.3 \text{ mm.} \quad (3)$$

(B) For the center of curvature of the posterior surface we have

$$\text{S1 C4} = \text{R1} \frac{2 \text{C} - \text{B}}{2 \text{C}} + 0.2 \text{ mm.} \quad (4)$$

In order to illustrate the clinical value of these formulas it is well to give a few examples.

It is a simple matter to make these formulas, and in a few minutes to calculate the position of either surfaces of the lens from the cornea.

III. The result of these measurements. It may be said briefly:

First. As to the position of the lens. It is very seldom in the ideal position shown in the text books because

(A) The anterior end of its axis points slight temporal-wards;

(B) The anterior end of that axis also points usually somewhat downward. It is proper to state that such astigmatism in the human eye is usually of a slight degree, probably not exceeding 0.75 diopters in most cases.

Second. During accommodation the entire lens apparently moves slightly downward.

Third. As to the changes which take place in the two surfaces of the lens during accommodation:

(A) The posterior surface as a whole changes but little. This increase in its convexity, though slight, is quite regular;

(B) The anterior surface of the lens as a whole does change, and to a very decided degree. The curvature is not regular, but the central portion assumes a kind of conical projection or bulging forward;

(C) The curvature of parts of the posterior surface change irregularly as compared with other parts. This perhaps is also true of the anterior surface, but the relative position of the blurred reflection from this surface cannot be seen so clearly with any phacometer thus far made.

IV. Clinical importance of the mal-position or of irregular curvature of the lens.

It is evident that any displacement or irregularities in the surfaces of the lens will produce a certain amount of astigmatism. This was long ago recognized as lenticular astigmatism.

It is true that the astigmatism produced by displacement is usually only of a slight degree, probably not exceeding 0.75 diopters in most cases.

But evidently the important point is that displacement or especially the varied and unequal changes in the surface call for correspondingly varied and unequal demands upon different portions of the ciliary muscles. Concerning this general proposition there can be no doubt.

Already a number of notes have been made which indicate that this subject is of very decided clinical importance in relation to those, as yet undefined symptoms called asthenopia. But those notes are not yet sufficient to warrant definite conclusions. A paper like this is quite long enough if it only attempts to indicate the instrument with which the observations are made, the formulas for making the calculations, the results obtained, and a mere glance at the clinical value which such observations have.

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. Derrick T. Vail and family of Cincinnati have returned from Europe.

Dr. Walter H. Peters, an ophthalmologist of Lafayette, Ind., died September 28th, aged 52.

The Noble prize in medicine was awarded to Prof. Allvar Gulbstrand of Upsala, Sweden, for his researches in dioptrics.

Prof. Gustav Killian of Freiburg has removed to Berlin and Docent Dr. Marx has undertaken the direction of the Freiburg clinic temporarily.

Dr. William J. Means of Columbus, O., was elected vice-president of the association of Big Four Railway Surgeons at the recent Indianapolis meeting.

Dr. Thomas McDavitt of St. Paul has been re-elected secretary of the Minnesota State Medical Association.

The New York Department of Charities recently distributed \$75,000 to the worthy blind poor who are learning trades in order to become self-supporting.

The members of the Colorado Ophthalmological Society tendered a complimentary dinner to Dr. Edward Jackson at the University Club, Denver, on the evening of October 21, 1911.

A glass eye manufacturer of Hoboken, N. J., was recently arrested charged with smuggling glass eyes from Germany. Fourteen thousand dollars worth of glass eyes ranging in value from 60c to \$5.00 each were seized.

Prof. V. Michel died September 28, in Berlin, aged 68. He was director of the Berlin University Eye Clinic and it was rumored that he intended resigning, but he later denied this. His death was caused by tuberculosis.

Dr. Wm. Zentmayer has been elected professor of ophthalmology in the Philadelphia Polyclinic and College for Graduates in Medicine. Dr. Zentmayer succeeds Dr. Theodore Schneideman, who has resigned.

George Andreas Barry, president of the Royal College of Surgeons, Edinburgh, and also of the Ophthalmological Society of the United Kingdom, received the degree of L.L.D. from the University of St. Andrews at the recent celebration of the five-hundredth anniversary of that institution.

ANTIFAT AND SOCIETY WOMEN.

To the Editor: An editorial in the Journal, entitled "Antifat and Society Women" (Oct. 14, 1911, p. 1290), induces me to report the following, showing a dangerous effect of thyroid: About five years ago a woman, aged 42, came to me complaining that in bright light she had difficulty in seeing, all objects appearing more or less hazy; but in a subdued light, or even in comparative darkness she had no trouble. An ophthalmoscopic examination showed an apparently normal fundus, with the possible exception of slight blurring of the edges of the disk. The vision was $\frac{2}{3}$ of normal in each eye. Perimetric examination disclosed an oval central scotoma for red and green in both eyes. Investigation of her mode of life revealed no apparent cause for this condition; she denied being addicted to either tobacco or alcohol. Repeated examination disclosed no sugar in the urine, this being the most frequent cause of a chronic toxic amblyopia, such as she was suffering from. Quite accidentally, during a subsequent examination, she volunteered the information that for a number of months she had been taking an antifat remedy recommended by a friend. Investigation revealed the fact that this patient had been taking thyroid extract for almost three months to reduce her weight. The thy-

roid was at once stopped; the patient was given strichnin hypodermatically, and in a few weeks the scotoma disappeared. On searching the literature at that time, I found one similar case reported by Albertsberg (Arch. f. Angenh. (Knapp's), January, 1904, p. 86), who cites four cases reported by Coppez. Whether any cases have been reported since that time, I am unable to say.

EMANUEL F. SNYDACKER, Chicago.

Journal A. M. A.

THE INTRODUCTION OF THE OPHTHALMOSCOPE INTO THE UNITED STATES.

To the Editor: I wish to correct the statement with reference to the introduction of the ophthalmoscope into this country, made by Dr. A. D. Williams, of Bedford, Ind., in *The Journal*, July 29, 1911, p. 408. The credit is due neither to Dr. E. Williams of Cincinnati, in 1855, nor to Dr. Herman Knapp, of New York, in 1868, but to Dr. Christopher Johnston, who on his return from a prolonged stay in Europe, early in 1854, brought the instrument back with him to this city. In a report made by him to the Medical and Chirurgical Faculty of Maryland, on June 7, 1854 (Transactions for 1854), he exhibited and described it. He made himself thorough familiar with it by studies in Berlin, with von Graefe, and in Paris with Desmarres. Dr. Johnston's report is accompanied by two ophthalmoscopic drawings and it is "highly probable that the very first colored drawings of the background of the eye, published in America, were those which he prepared" (Theobald, Samuel: "The Evolution of the Ophthalmoscope and What It Has Done for Medicine," *New York Med. Jour.*, June 22, 1901). The only article on the ophthalmoscope published in this country prior to Dr. Johnston's report, so far as I am aware, is a translation, somewhat condensed, of Helmholtz's original tract, by Dr. W. R. Sanders, which appeared in the *American Journal of the Medical Science*, July, 1853, and was copied from the *English Monthly Journal of Medical Science*, July, 1852.

Dr. Johnston was a highly accomplished scientist as well as physician, and held in the University of Maryland successively the chair of anatomy (1864-66) and that of surgery (1869-81).

EUGENE F. CORDELL, M. D., Baltimore,

Professor of History of Medicine, University of Maryland.

Journal A. M. A.

CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wipperr (E.E.N.T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperr (E.E.N.T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperr (E.E.N.T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ils. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findley (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) *Wm. H. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) II. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ils. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findley (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ils. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) II. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findley (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findley (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ils. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ils. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

*Special operative eye clinics.

ABBREVIATIONS:

C. C. S.: Chicago Clinical School,
819 W. Harrison Street.
E. E. N. T.: Chicago Eye, Ear, Nose
and Throat College, Washington and
Franklin Streets. Clinics all day.

County: Cook County Hospital, W.
Harrison and Honore Streets.
Ils. Med.: Illinois Medical College,
182 Washington Blvd.
Inf.: Illinois Charitable Eye and Ear
Infirmary, Peoria and Adams Streets.

Poli.: Chicago Polyclinic and Hospi-
tal, 174 E. Chicago Avenue.
P.-G.: Post-Graduate Medical School
of Chicago, 2400 Dearborn Street.
N. W. U.: Northwestern University,
2431 Dearborn Street.

Rush: Rush Medical College, W.
Harrison and Wood Streets.
St. Luke's: St. Luke's Hospital, 1416
Indiana Avenue.



Margaretta Washington

HYALINE DEGENERATION OF THE CORNEA.

THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY

Vol. XX

CHICAGO, DECEMBER, 1911

No. 12, New Series

ORIGINAL ARTICLES.

A CASE OF HYALINE DEGENERATION OF THE CORNEA.*

BY WENDELL REBER, M. D.,
Philadelphia, Pa.

June 10, 1908. Mrs. M. T. D., aet. 50, widow, states up to August 1st, 1907, her right eye was absolutely normal so far as she knew. On that day during a train ride something flew in her right eye, but gave her very little discomfort and that only temporarily. The next morning her daughter asked her what was the matter with her eye and on looking in the glass she discovered a "peculiar looking milky white spot spread out over the upper part of the eye, and when she looked straight forward it barely showed below the lower edge of the upper lid." This would mean approximately the upper quarter of the cornea and the upper fourth of the pupil area were covered by that time. She consulted no one until November 27th, 1907, (practically 4 months later) when she was seen by Dr. J. H. Dewey. She states that at this time "the clouded spot was the same size as when she first noticed it." Yellow salve was ordered for it. She avers that after six weeks' use of the yellow salve the spot seemed to be larger and she of her own accord stopped using it. when, she further states, the spot shrank somewhat but it did not become as small as when she first noticed it.

She was a well nourished, healthy woman of medium height, good life habits, apparently good metabolism; abdominal functions all well performed. She gave a history of measles and scarlatina in childhood and alluded to three attacks which according to her description sounded like adenitis of the cervical and submaxillary glands.

*Presented before the Philadelphia Polyclinic Ophthalmic Society Oct. 12, 1911.

Status Praescens. Vision equals R. 5/15, L. 5/12. The right eye showed somewhat dilated posterior conjunctival vessels, the cornea was smooth and regular and presented in its upper aspect an irregularly oval patch about 5 by 7 mm. long, axis 140 degrees. It was of the hue of old ivory or pale mutton fat, and was smoothly and regularly covered with corneal epithelium everywhere as Placido's disc showed no distortion in the upper portion of the corneal image. The lower edge of the colored area was sharply defined and reached to the lower third of the pupillary area. The pupil was $4\frac{1}{2}$ mm. in diameter, apparently regularly round and reacted promptly to light (2 mm. reaction). On rotating the eye to the limit upward no iris attachment to the cornea posteriorly could be seen. The fundus was normal in all respects. The lids were normal.

As to the colored area itself it seemed to lie directly under the corneal epithelium and at the middle appeared faintly lobulated. Three fine vessels passed onto it at the upper limbus and under the epithelium coursed over it. With the Jackson binocular magnifier the lower edge was distinctly crenated, indeed almost finely feathery, and numerous fine globules could be made out in the infiltrate. With the exception of the few vessels noted the eye was absolutely quiet and the tension normal. The remaining portion of the cornea was perfectly transparent.

The left eye was normal in all respects and presented an astigmatism of one diopter with the rule, at axis 15 or 105 degrees.

The patient was told that under cocain a few scrapings could be easily taken from the upper portion for microscopic and chemical examination; but she flatly refused to have anything done locally because of her conviction that the use of the yellow salve had caused an increase in the size of the yellow spot, a view which very naturally I dissented from. She was placed on ascending doses of sodium iodid.

Three months later she returned with the corneal condition unchanged. In the meantime she had taken up to 35 grains of sodium iodide three times a day. At this time the iodide was discontinued and 3 grs. of thyroid substance three times daily substituted for it.

One month later she reported back without the slightest change from the condition first described and complained so much of the circulatory disturbances set up by the thyroid sub-

stance that it was withdrawn. At this time she was seen with a colleague who leaned toward the diagnosis of a tubercular lesion of the cornea. It was accordingly proposed to her again to permit a subcutaneous tuberculin test, but this was steadfastly declined as before. She was therefore dismissed from observation but reappeared one year later when it was plain that the infiltrate had extended further downward almost to the lower border of the pupil and occupied a perfectly circular space. Indeed at this time it looked somewhat like a lens that had been dislocated upward into the anterior chamber, so perfectly round was the infiltrated area. A sketch by Miss Washington made at this date shows the condition quite fairly well. The vascularization at the upper edge is now much more marked, but aside from this there is no sign of irritation about the eye. In fact, the patient has never experienced the slightest twinge of pain since the condition was first observed. The ocular tension is still normal and the iris still seems uninvolved.

One year later (Dec. 10, 1910) the conditions were practically unchanged. For two years the patient has gone without any treatment whatever. Meanwhile her general physical condition remains the same. At this consultation I tried to persuade the patient to submit to X-ray treatment of the condition, but when she learned that frequent visits to the city would be necessary she declined. Another colleague saw her at this time and with considerable hesitation ventured the diagnosis of leucosarcoma of the cornea which it must be admitted is a possibility.

Oct. 12, 1911. The only change noted at this date is that beyond the lower finely erenated edge of the infiltrated area is a thin $1\frac{1}{2}$ mm. zone in advance of the yellow area. It is finely grey and may mean that the area of yellow infiltration will gradually extend into it. The lower $\frac{1}{3}$ of the cornea, however, is absolutely clear.

As the patient persistently denied me the advantage of laboratory methods in arriving at a diagnosis in this obscure case, I am obliged to depend upon clinical appearances entirely. From the therapeutic side I should say it was not a syphilitic phenomena, as 100 grains of sodium iodid were taken daily for almost four weeks without the slightest appreciable effect upon the corneal condition.

Whether or not it is a tubercular manifestation must remain something of an open question. The history of three separate attacks of cervical and submaxillary adenitis is suspicious and cannot be discounted. At the same time, the patient's splendid physical condition throughout the last ten years argues somewhat against the tubercular origin of the trouble, although it is sometimes in just such subjects that focal tuberculosis is seen, as pointed out by Derby, Posey and others. The fact, however, that the lesion has remained almost stationary for more than four years, rather, in my judgment, points away from tuberculosis.

If it were a new growth, it is altogether probable that in these four years there would have been extension to the contiguous structures. I am therefore led by exclusion to look upon the condition as one of the slow degenerations at times met with in ocular tissues, namely, either fatty or hyaline degeneration of the cornea. This was my first provisional diagnosis four years ago and it was much reinforced in my own mind last year on reading Rubert's (Knapp's Archives, Vol. 39) report of three cases of hyaline degeneration of the cornea in which the colored reproduction of this condition (afterward verified under the microscope) corresponded almost absolutely with that shown in the sketch by Miss Washington. All of his cases occurred in young people, one being 22 years old (male), one 18 (female) and one 20 (female). In all three, the corneal condition presented the later stages of trachoma. In one the duration of the disease was two years, in one one year, and in the third case, ten years. In the last case, the anterior layer of the cornea was lifted up (under local anesthesia) without disturbing its attachments to the limbus except at two points, the diseased corneal tissue removed and the anterior layer of the cornea replaced. Healing took place by primary intention and the vision was improved two fold. He gives a very good description of the status, as follows:

"In all the cases there is a peculiar formation of new tissue in the cornea which appears to be a greyish yellow or yellowish white deposit, sometimes raised a little above the level of the rest of the cornea from which it may be slightly differentiated. The surface is slightly rough with here and there little vessels

in the bulbar conjunctiva, the latter being slightly injected in the neighboring parts. At first the process is always localized downwards. In the more severe cases, such as Gallenga and at the upper margin of the cornea whence it gradually spreads Lucarelli's, it may cover almost the entire cornea."

Rubert (q. v.) believes that the vessel walls should be looked upon as the starting point of the hyaline formation in his cases. He has never seen normal vessels bordering on hyaline degenerated tissue while the reverse has been seen repeatedly. The condition met with in hyaline degeneration of the conjunctiva does not seem to contradict this theory.

In Guth's case the degeneration was confined to the vessels and the surrounding tissue showed scarcely any changes. The alterations in the reticulum and vessel walls in Rubert's cases did not differ from those in Berlin's, Gallenga's and Lucarelli's cases. In all of Rubert's cases trachoma seemed to bear a causative relation to the corneal condition. In my own case no such relation has existed.

Histologically Rubert's cases differed more or less from each other. They all showed special change in the appearance of a homogeneous substance sometimes in the form of single structures, sometimes in the form of bands. In two cases this substance stained with the basic as well as with the acid dyes. The reactions for amyloid were always negative. He unhesitatingly designates the substance as hyaline and strongly differentiates it from kerato-hyaline and colloid. These designations are frequently erroneously applied, as when pathologic conditions of the cornea are sometimes termed hyaline, sometimes colloid. He makes the point that a sharp differentiation is not possible chemically nor physically and attributes hyaline degeneration to changes in the endothelium and its derivations—while kerato-hyaline and colloid are due to changes of the epithelium, the former of the flat epithelium and the latter of the cylindrical.

Deposits of hyaline substance in the ocular tissues are by no means rare—indeed they are common in old leucomata, anterior staphylomata, band shaped opacities, etc. But hyaline degeneration occurring in a previously normal cornea seemingly without cause must be considered rare and its etiology at the present time remains obscure.

A MODIFIED TREPHINE FOR THE FERGUS-ELLIOT OPERATION IN GLAUCOMA.

By L. WEBSTER FOX, M. D., LL. D.

PHILADELPHIA, PA.

Illustrated.

Having had the opportunity of using the simple trephine (Sydney Stephenson's) in the Fergus-Elliott operation for chronic and acute glaucoma, and appreciating the difficulties in its technical use, I had modified circular blades, 1.5 and 2 mm.,

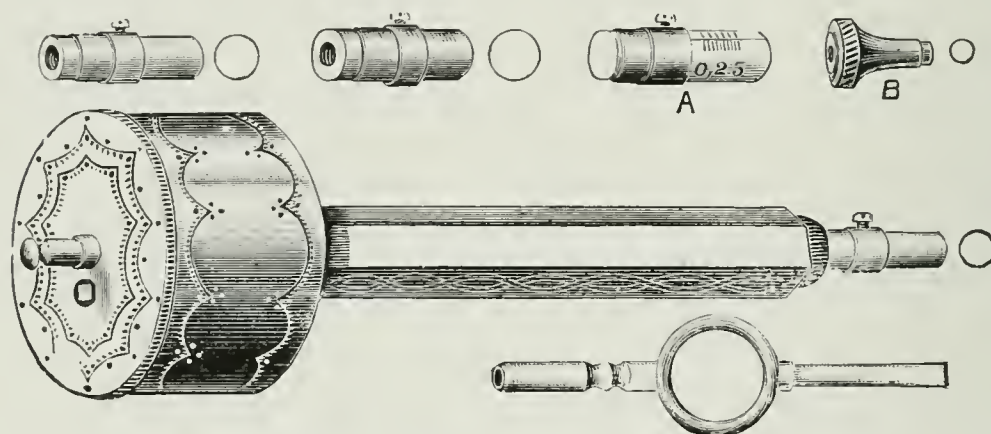


Fig. 1. Von Hippel Trephine for Corneal Transplantation.

A.—Scale to adjust trephine.

B.—Trephine for sclerectomy.

adjusted to a Von Hippel corneal trephine. The delicacy and ease with which the trephining may be carried out with this instrument robs the operation of many of its dangers and reduces the pain to a minimum.

This operation, both for acute and chronic glaucoma, is still too new in my hands to express an opinion on its merits, but if the drainage can be maintained and the tension of the eyeball held normal, I feel that of the *newer operations* for glaucoma the majority of ophthalmic surgeons will adopt this method on account of its simplicity and the ease with which it is performed.

Since writing the above, my attention has been called to Dr. A. Nimmo Walkers' article on "Sclero-Corneal Trephining for Glaucoma," Liverpool, *Medico-Chirurgical Journal*, July, 1911, in which he has adapted similar cutting blades 1 mm., 1.5 mm., and 2 mm., which may be adjusted to the Von Hippel's trephine.

COPIOPIA HYSTERICA*

With Report of Two Cases.

WM. E. SHAHAN, A. B., M. D.

ST. LOUIS, MO.

Copiopia * Hysterica is a term introduced by Forster many years ago to indicate a condition in which most of the *symptoms* of the accommodative asthenopia of hypermetropes were present, either in the total absence of such asthenopia, or in the presence of its complete correction. The conditions so strongly simulates asthenopia that it is likely to be described, in such works as mention it at all, under the heading of Anomalies of Accommodation. The patient's symptoms of headache, of pain about the eyes and in the globes, "as if the eye-balls would burst", of ability to read only a short time without distress, and of photophobia, cause her to attribute all her troubles to eye conditions. Nevertheless the pathogenesis of the disease appears to have no ocular basis whatever but to be dependent upon long standing disease of the uterus and its adnexa, with reflex irritation of the fifth and optic nerves.

Of the two cases observed one was a patient of my own, the other a patient of my Senior Associate Dr. John Green. For various reasons the management of his case fell partly into my hands, and it was through consultation and conversation with him about the case that its real nature became known to me and I was able to follow it closely along rational lines.

The first case was a woman of 34 years, married 11 years, several children. Her complaint was of great sensitiveness to light, especially artificial light. "An awful lot of headache," of ability to read only a few lines at a time without discomfort. She said that her sight had not changed—that she "had always been near-sighted." This was her first attack and had begun eleven days before she came. Her lids were closed to a narrow slit and her general appearance was one of suffering, such as is often seen in superficial lesions of the cornea, but without lacrymation. Examination revealed not even a conjunctival hyperaemia. Her refraction was:

O. D. M. 2.50 Am. 3.50 Mo vert. V 20/75+

O. S. M. 2.50 Am. 3.50 Mo vert. V 20/75+

almost exactly what she had been wearing for three years. This

*Read before the Ophthalmic Section of the St. Louis Medical Society October 4, 1911.

was reviewed repeatedly but no improvement in vision could be obtained. The fundus O.D. and O.S. was normal except for a slight stretching of the choroid about the disc. The fields were somewhat contracted. (The element of hysteria in her case was rather marked.) Pupils were rather large. "People had often noticed how large her pupils were". Tension normal O.D. and O.S. She came to my office at intervals from a neighboring town for five months. She recovered beautifully from the first attack under instillation of biborate of sodium alone (a purely psychic measure). But returned repeatedly at irregular intervals with renewed attacks, which were at their worst about the time of menstruation. Asthenopic symptoms were always present. "Could scarcely sew on a button without getting a headache."

Various medicinal, refractive and psychic expedients were resorted to in the attempt to give her relief—at one time ovarian extract was given her on a theory of deficient ovarian secretion, but with ill rather than good effects. Her family physician had charge of her general condition and depended largely on bromides and valerianates, with a probable amelioration of symptoms. She had a history of pain in her sides since the birth of her third child seven years previously and of an operation, "for the removal of the appendix and left ovary", fourteen months previously. Rest in bed and rigid control and supervision of gynecologic conditions by an expert was not possible in her case and when last heard from, her condition was not satisfactory, and probably will not be until such control is assented to, or until cure is brought about by the passing of years, as is generally said to occur.

The second case was much more satisfactory in that it was under complete control at all times. This patient was a woman of 21 years, married 5 years, no children. Her complaint was of severe pain in the head, "behind the eyes and in the eye-balls", inability to read without getting headache and eye-ache, and of photophobia, especially to artificial light. This had begun three months previously and at times the pain in the head and eyes, especially O.S. became so severe that she was given morphine by her family physician. She had a hypermetropia of 2 diopters and had been wearing +1.75 sph. for nearly a year. No ocular condition was found that could account for her trouble. Vision perfect, fields normal, fundus normal O.D. and

O.S. a slight homonymous doubling by Maddox test. Never at any time, even when great pain was complained of, was there any congestion, increase in tension or other pathologic sign about either eye. The severe pain in her head and eyes was accompanied by gastric disturbances, nausea, vomiting, etc. and for this she was referred to an internist. He in turn referred her to a gynecologist who reported, "an infiltration of the left parametrium and about the left adnexa and some endo-cervicitis", and advised, "rest in bed and local measures, non-operative". It had already been discovered that she had had a curettement soon after her marriage, and for several years had had pain and tenderness in her left side. She was put into a hospital and while there had several very severe attacks lasting two or three days each. During one of these it was necessary to give her morphine or codine. It is characteristic of such cases that any mental or physical disturbances may precipitate an attack. At one time she had a very severe attack which followed rushing down stairs in an unguarded moment to get a long distance telephone message. Another attack followed reading for an hour or two during a period of tranquility one afternoon. Her pupils were also larger than is normally seen, and pilocarpine instillations appeared to be of real value in this case as also in the other, probably by shutting out some of the excessive light. Holocaine was also of value during the height of an attack, perhaps because of the different kind of pain it produced and the relief which followed. Gradually, under systematic treatment by the gynecologist, the attacks became shorter and less frequent. She was able to leave the hospital after about five weeks and had a few mild attacks following some psychic or physical disturbance. The gynecologic treatment was continued at her home by her regular physician who took pains to get personal instructions from the expert. When last seen, four months later, she was much improved in every way and had had very little further trouble.

The photophobia in these cases is worthy of special note, in that it is most marked in artificial light, either electric, gas or petroleum. This would seem to indicate a hypersensitiveness to long light waves, which are preponderant in all such illuminants.

There are few text books in which attention to this affection is called. It is mentioned in an article by Dr. John Green in

"A Reference Hand-book of the Medical Sciences", in Fick's "Diseases of the Eye and Ophthalmoscopy" and in Fuchs' text book. A very excellent description of it is to be found in the fourth edition of Vossius' "Lehrbuch der Augenheilkunde" p. 126 under the caption "Anomalien der Akkomadation".

The article by M. Parinaud in Norris and Oliver's "System of Diseases of the Eye" appears to give too wide a scope to it as it is there considered identical with the "painful accommodation" of Donders and the "hyperesthesia of the ciliary muscle" of Nagel.

In an article in La Clinique Ophtalmique No. 22, 1899, Königshöfer would employ the term *Copiopia Symptomatica* instead of *Copiopia Hysterica*, because he thinks it is never dependent upon a pure hysteria but is evidence of a series of irritations of the fifth and optic nerves due to disease or anomalies of the sexual organs, to neurasthenia, chlorosis or infectious diseases.

In conclusion it may be said that as this is not fundamentally an eye disease the importance of recognizing it and diverting patients afflicted with it into proper hands for proper treatment, is evident.

520-33 Metropolitan Bldg.

A SO-CALLED CASE OF IDIOPATHIC NEURO-RETINITIS WITH SPONTANEOUS RECOVERY.

JESSE S. WYLER, M. D.

CINCINNATI.

This case is reported to illustrate the difficulty which frequently arises in determining the etiological factor producing a disease and also a marked deviation from the normal course and results in one of these cases.

History.—On August 15th of this year, Mr. L. H. G. of Dayton, Ohio, reported to me with the following history. He had always been well until the last two months, when he became decidedly nervous, memory poor and feeling of lassitude. He was attending a university up in the central portion of the state, studying architecture, and about the same time noticed that his right eye blurred at his work. A doctor was consulted who, after careful preliminaries, diagnosed a cerebral lesion, and told the patient that he was losing his mind. This did not add to the mental rest of the individual and he came to the city to consult

Dr. D. I. Wolfstein and the writer. He was given a complete neurological examination by the former and this being negative, was sent to me.

Status Praesens.—A well developed adult male, about 5 feet 8 inches in height, poor color and only fairly nourished. Has very prominent eyes, with slight grade of exophthalmus; however, all sympathetic symptoms absent. Right protrudes more than left. An enlarged thyroid is present, but pulse rate is normal, and no muscular tremor. Pupillary reaction O. K.

Dilated pupils with scopolamine.

Retinoscopy + 1.75 + 1.75
+ 1.75 + 2.0

R. E. + 1.75 6/18.

$$\text{L. E.} + 2.0 \text{ e} + 0.25 \text{ e } 90^\circ 6/4.$$

Ophthalmoscopically the R. E. shows clear media, the disk is grayish, no elevation, the outline very indistinct. Veins are dilated, but not tortuous to any extent. In the macular region is a stellate figure, shining white, like an albuminic retinitis, and below is a flame-like hemorrhage in the center of which is a white degenerated area. From this description the only possible diagnosis is a *hemorrhagic neuro-retinitis*.

The field of vision normal, but nearly 50 per cent contraction for colors, and dimness approaching the center.

The left eye is normal in every respect.

General Examination.—Patient denies venereals and syphilis. Urine shows a few shreds of mucous, is clear amber, 1018, no albumen sugar or casts. Blood pressure and blood count shows nothing. Heart, lungs and abdomen, negative. Weight, 134 pounds.

Advised to consult a rhinologist for thorough examination of the sinuses, as the majority of unilateral neuritis is of that origin. Was examined on the 16th by Dr. W. C. Harris, and no evidences of nasal involvement found.

Treatment.—Correction for refraction in London Smoke No. 2 ordered for constant use, and being at a loss for causative factors, gave K. I. grs. xx three times daily. Patient returned to Dayton on *August 30th*. Vision with correction R. E. 6/12? Fundus about the same. Looks and feels much better. Eyes itch, so ordered a collyrium and rest.

September 19th. Vision 6/6? No hemorrhages, disk outline

more distinct, and only a few white opacities seen in the macula. To continue K. I. in larger doses. Weight, 137 pounds.

October 11th. Vision $6/4$? Fundus *absolutely free from any pathological process*, and as patient desires, is again allowed to work. Weight 142 pounds.

What was the cause of this transient condition? Not the kidneys, diabetes, leukaemia, anaemia, nasal condition, or neurological disease. As the patient's weight increased and the general condition improved, in such a proportion did the eye get better. Was it the iodide? I think not, for the dosage was small and the result too rapid for a syphilitic recovery. For these reasons I presume to call this a case of idiopathic neuroretinitis with spontaneous recovery.

A STUDY OF SYMPATHETIC OPHTHALMIA.

BY PROF. DR. A. ELSCHNIG, PRAGUE, AUSTRIA.

[Translated by Dr. Harry S. Gradle, Chicago, from Graefe's Archiv. f. Ophthal. Volume XXVIII.]

With Bibliography.

Continued from page 687.

Still there is no explanation why the second eye becomes diseased with the identical inflammation of the first. Neither Meller nor any of the adherents of the theory of a purely bacterial cause of sympathetic ophthalmia (excepting Gilbert, Motais) explain this. We are thus confronted with the theory that the pathological micro-organisms may increase and become virulent only in the uvea of the eye primarily diseased by trauma, inflammation (*Nota bene traumatic*), or sarcoma, with subsequent chemical inflammation; that they gain metastatic admission to the chorioid of the second eye, find a lodging place in the intact uvea and there and only there have a pathogenic action. I do not believe that in the whole of the bacteriology there is a proof for any such biological peculiarity of any pathogenic organism.

So we have summarized the mycotic theory of sympathizing inflammation based upon anatomical researches, as follows: The unknown cause of sympathetic ophthalmia attains admission either by trauma or endogenously into the primarily diseased eye—it is pathogenic only for the uvea and according to Meller only for the uvea which has been injured by a traumatic iridocyclitis or by an intra-ocular sarcoma (Meller, an injury of the

tissues of traumatic, bacterial, or chemical nature!), more accurately only for the normal or nearly normal parts of the injured uvea. The unknown organism increases there, causing the picture of a sympathizing inflammation and thereby becomes pathogenic for the uvea of the second entirely normal eye. More accurately (Fuchs and Weigelin), the inflammation at the port of entrance must have reached a certain degree before the cause of the disease becomes sufficiently virulent to attack the normal uvea! This transmission occurs by metastasis, at the earliest fourteen days after the trauma, but within these fourteen days there is practically never in the primarily diseased eye any evidence of the presence, or increase in virulence of the organism! In spite of this increased virulence, the organism is pathogenic only for the uvea! For those who regard the eye alone as the port of entrance of the sympathizing inflammation and do not agree with Meller's endogenous theory—for such the unknown cause must possess the possibility of lurking dormant for years in the primarily diseased eye and there suddenly, for some unknown reason (according to Fuchs when the consecutive inflammation has reached a certain degree, has suffered an acute exacerbation), becomes pathogenic for the second eye. In addition, this unknown cause has the potentiality, as the examination of Fuchs has shown, of not manifesting itself in the injured eye during the first fourteen days of a traumatic irido-cyclitis or manifesting a pathogenic action. As we must accept Schirmer's view that sympathetic ophthalmia does not appear under fourteen days, the above facts cannot be explained, nor why in the numerous eyes enucleated as a preventative, the beginning stadium of a sympathizing inflammation is not to be found (Fuchs).

An opposing theory in regard to the cause of sympathetic ophthalmia—the Schmidt-Rimpler nerve irritation theory—has but few supporters. It originated through some experiments which are no longer regarded as accurate, namely, that a ciliary nerve irritation in one eye may cause vascular and trophic changes in the other eye by means of ciliary nerve reflex irritation. In 1892, Schmidt-Rimpler formulated his theory that bacterial and chemical injury which, in a normal organ, would not cause an inflammatory process, might cause sympathetic inflammation in the organ reacting to the reflex ciliary nerve irritation. But this predisposition never led to a sympathetic ophthalmia without general infection.

Among the few German authors who believed in this theory was Bach (34, 35, 36), who characterized his point of view and elaborated the theory as follows:

“Every irritation of an eye causes reflexly a similar irritation in the second eye. This irritation is probably transmitted through the medulla oblongata or the spinal cord and the irritation results probably from a common vascular nerve center for both eyes. In consequence the vessels of the second eye become dilated and their walls become permeable for fibrinogen, for the substances dissolved in the circulating blood which cause inflammatory process, as well as for the formed elements of the blood, both normal and pathological. Under certain conditions, infectious diseases, whereby large amounts of destructive substances come into the blood, the symptoms of irritation are increased in the primarily diseased eye as well as in the second. The severity and course of the resultant inflammatory process depend upon the kind of destructive influences, the length of their action, and upon the resistance of the eye. If, for example, the irritating substance in the circulating blood be soluble, inflammatory symptoms may disappear, after their disappearance. Whereas, if bacteria from the circulating blood obtain admission to the eye, develop there and cause a progressive inflammation, enucleation of the injured eye would naturally be of no value. As a rule, sympathetic inflammation will appear only when other destructive influences are present in addition to the injury and the subsequent inflammation of the uveal tract.”

This theory of Schmidt-Rimpler approaches more nearly the hypothesis that I have formulated as a result of my previously mentioned work.

I agree with this theory that the cause of sympathetic ophthalmia is not bacterial, but depends upon the presence of certain anomalies which can either be shown as organic disease, like nephritis, diabetes, and such, or caused by auto-intoxication associated by constitutional anomalies. The succession of the disease into the second eye, the identity of the anatomical pictures in those parts of the uvea of the first eye not affected by endophthalmitis and in the second eye, can be explained by the contracted hyper-sensibility of the uveal tissue. That such a hyper-sensibility localized to one organ and even to one form of tissue may occur, is proven by a very similar example, namely, the hyper-sensibility of the skin in tubercular individuals.

I believe the process to be as follows:

THE FIRST EYE IS SEVERELY INJURED BY TRAUMA AND POSSIBLY INFECTED BY ONE OF THE USUAL PYOGENIC ORGANISMS. OR IT BECOMES DISEASED ON ACCOUNT OF AN EXISTING ANOMALY OF THE ORGANISM BY A BACTERIAL INFLAMMATION ORIGINATED BY THE TRAUMA. THE DESTRUCTION OF TISSUE RESULTANT TO THE INFLAMMATION, LEADS TO AN ANTIGENOUS RESORPTION OF UVEAL TISSUE. THENCE TO THE HYPER-SENSIBILITY OF THE REMAINING PORTIONS OF THE UVEA OF THE PRIMARILY DISEASED EYE WHICH WERE NOT INFLUENCED BY THE TRAUMA. AND PRIMARY INFLAMMATION, AS WELL AS TO A HYPER-SENSIBILITY OF THE NORMAL UVEA OF THE SECOND EYE. IN CONSEQUENCE OF THE EXISTANT LOCAL HYPER-SENSIBILITY OF THE UVEA, THE EXISTANT SOMATIC ANOMALY FINDS A POINT OF ATTACK AND LEADS TO THAT INFLAMMATION OF THE UVEA OF BOTH EYES WHICH WE HAVE LEARNED TO KNOW AS A SYMPATHIZING INFLAMMATION. Of course, it is not impossible that slight influences upon the second eye which would be without influence upon the normal organism, could play a role in causing a uveitis in the sympathizing eye as well as in the sympathizing. However, two presumptions are absolutely essential, the hyper-sensibility of the tissue and the tendency of the organism toward disease.

All the contradictions that the ruling mycotic theory raises and which have to be explained by secondary hypothesis, disappear with this conception.

But first it must be emphasized that the histological individuality of the sympathizing inflammation and that the absence of poly-nuclear leucocytes in the inflamed uvea, is not a definite proof of the specificity of the virus any more than is lymphocytosis in the histological picture of tuberculosis. It is well known that certain specific etiological causes, as for example, neoplasms [Hausen (37)] result in the inflammatory changes characterized by a collection of lymphocytes, and also how differently certain animals of the same species react toward the same infection. But infection is always the result of a variable influence of macro and micro-organisms introduced from without, and that the

resultant anatomical picture depends upon the type and virulence of these, and, as Gilbert especially emphasizes, the form of reaction of the organ and organism.

The first point to be discussed is the interval of time that comes between the primary injury and the appearance of the sympathetic inflammation.

It is well proven that a certain period of time must elapse before anti-bodies and the subsequent anaphylaxis due to the resorption of antigens appears. The formation of anti-bodies occupies about ten days, whereas an anaphylaxis does not appear under twenty days. Thus the appearance of sympathetic ophthalmia in never less than fourteen days, and usually within four weeks is easily explained. As well as the findings that Fuchs could not explain, that eyes enucleated within fourteen days on account of danger of sympathetic ophthalmia, practically never show any signs of a sympathizing inflammation. This inflammation, the anaphylactic reaction of the hyper-sensitized uveal tissue, must in consequence of the constitutional anomalies, develop about parallel in both eyes. So we can understand why sympathetic ophthalmia may manifest itself after enucleation only when it has started in the enucleated eye and in consequence is anatomically present in the enucleated eye.

This further explains why a sympathetic ophthalmia may be expected when the enucleated eye anatomically shows a sympathizing inflammation. For there exists already in the second eye a similar inflammation which has not manifest itself clinically. For the same reason the outbreak of a sympathetic ophthalmia occurring at some time after the enucleation of the injured eye never occurs. The very rare case that Fuchs reported, where a very severe sympathizing inflammation was present in the enucleated eye without the occurrence of a sympathetic ophthalmia may be regarded as a local hyper-sensibility of the injured eye and as the result of a local formation of anti-bodies.

If my views are right, the enucleation of the injured eye can have no influence upon the course of an existant sympathetic ophthalmia, which clinical fact is well known. For as soon as the uvea of both eyes becomes sensitized by the antigenous absorption from the sympathizing eye, the anaphylactic reaction of the second eye can no longer be influenced in any way. That neurotomy and neurectomy are of no avail, necessarily follows, as well as the fact that exenteration is a thorough substitute for

enucleation. The latter is not explainable when viewed in the light of the mycotic theory. It would have to be regarded as one of the wonders of the world that an exenteration could dispose or could remove from an eye all organisms that could be the cause of a sympathetic ophthalmia, especially since a sympathizing inflammation tends to penetrate through the emissaries of the sclera. I give voice to this view in the second volume of Czermak's Surgery, but my theory presents no difficulty in explaining the occurrence of sympathetic ophthalmia after incomplete exenteration, where some resorbable uveal tissue was left behind. Such cases have recently been described (44 and 45).

For the late appearance of sympathetic ophthalmia (years after the primary injury) the explanation is simple in that a typical exacerbation of the inflammatory process in the primarily diseased eye leads to a new hyper-sensitization of the uvea. In these cases, sufficient time elapses to allow the constitutional anomalies to develop so far that they become of pathological importance to the uvea of the sensitized, diseased, and normal eyes and in the latter, inflammatory process becomes visible.

The explanation of the occurrence of sympathetic inflammation after non-perforating injuries (traumatic sub-conjunctival scleral ruptures) as well as intra-ocular sarcoma, does not present any difficulty. In traumatic sub-conjunctival scleral ruptures, the injury to the uvea is usually very severe; consequently it is easy to understand that there is a great antigenous absorption of the uveal tissue with the subsequent anaphylactic reaction and in cases of anomalies of the organism, inflammation in the uvea.

The coincident appearance of a marked endophthalmitis septica and sympathizing inflammation in the same eye can be understood without having recourse to the theory of mixed infection or simultaneous endogenous and exogenous infection. It is also very clear why the inflammation, non-purulent because non-septic, which appears in the hyper-sensitized uvea as a result of exsistant constitutional anomalies presents an entirely different anatomical picture than the endophthalmitis septica.

In regard to this very point I wish to differ with Gilbert that an inflammation must not be considered non-septic because after the elapse of more or less time no bacteria are found. To corroborate this I need only mention the well known clinical course of an ophthalmia neonatorum, where gonococci may

disappear early and nevertheless the typical anatomical changes develop. Especially in case of pneumococci conjunctivitis could we prove the early disappearance of the pneumococci, although the clinical course of the consequent inflammation was protracted. Nevertheless I believe, as I have mentioned and as Gilbert has proven, that an *injury may produce an aseptic inflammation of an insidious character*. The cause of this manifestation is an abnormal reaction of the organism toward disease producing injury. In absolutely normal individuals, a non-infecting trauma may cause no inflammatory results. But let there be a constitutional anomaly even an aseptic trauma will result in inflammation.

The reason why sympathetic ophthalmia never occurs after pan-ophthalmitis is because there occurs a very rapid, progressive destruction of the uvea and a purulent condition which cannot be accompanied by antigenous absorption, and absorption of tissue. As is well known, the formation of anti-bodies is distinctly lessened where the primary injection of the antigen is accompanied by a suppuration. Another reason may also play a role.

As we discussed previously, there occurs in certain individuals with traumatic irido-cyclitis, other factors being normal, a marked increase in the lymphocytes in the blood at the cost of the poly-nuclear leucocytes. Cases of insidious inflammation show this change especially markedly. The cause of this phenomenon, I believe to be that individuals with constitutional anomalies react differently than absolutely normal individuals to the trauma or infection. In normal individuals the pneumococci infection usually causes a purulent inflammation, whereas in the diseased organism the pus formation may be supplanted by an insidious inflammation which can be recognized by the lymphocytosis.

Consequently, we must not be surprised at finding organic diseases a so frequent accompaniment of sympathetic ophthalmia.

In the five cases of sympathetic ophthalmia that came to autopsy, nephritis was present three times, complicated once with brain tumor (Grunert 39), once with tuberculosis (Asayama 40), once with endocarditis of the aortic and bicuspid valves (Wagelman 41), carcinoma of the stomach was present (Deutschman 42), and once a purulent meningitis (caused by the enucleation?) (Zimmerman 43).

Let every case of sympathetic ophthalmia be carefully examined by our present internal methods, especially for the so-called constitutional anomalies and for auto-intoxication, and we will certainly find etiological causes within the organism for the occurrence of a sympathetic ophthalmia. These I was able to show in my above mentioned cases of irido-cyclitis.

If my theory be accepted, there will follow the recognition of the fact that spontaneous (idopathic) irido-cyclitis of one eye can lead to a sympathetic ophthalmia. The examination of the cases I have mentioned above, shows that insidious cases of irido-cyclitis characterized by an extensive tissue destruction and possessing a chronic constitutional anomaly in the widest sense of the word, had a similar inflammation in both eyes in the majority of them.

Thus we have the explanation why these cases of bilateral irido-cyclitis present such an unfavorable prognosis as regards the vision.

No one can deny that although the fully developed picture of sympathizing and sympathized (i. e., anaphylactic) inflammation is a characteristic one, still a chronic spontaneous irido-cyclitis, non-traumatic and never developing the so-called sympathetic ophthalmia, may present an analogous anatomical picture. Gilbert emphasized this and I have been able to confirm him by my own anatomical examinations of non-traumatic irido-cyclitis. Schmidt-Rimpler's theory cannot explain why a sympathetic irritation *toto coelo* is different from the inflammation and especially why the irritation did not develop into the inflammation, or vice versa, why the inflammation frequently appeared without a preliminary irritation. The sympathetic irritation can well be explained by a reflex ciliary nerve irritation, but the absolute independence of irritation and inflammation is in itself a proof that a sympathetic inflammation of the eye is not due to an irritation of the ciliary nerves.

Fuchs proved the dissimilarity of these processes when he found only once the picture of a sympathizing inflammation in sixteen eyes which had been enucleated because of a sympathetic irritation of the second eye. These views, however, do not help us in the diagnosis of sympathetic ophthalmia, which had best be called anaphylactic irido-cyclitis. It will remain a clinical problem until the complement fixation experiments can prove the presence of anti-bodies in cases of uveal immunization, and

this is scarcely to be expected. Our animal experiments have shown us that a most typical anaphylaxis may exist without the possibility of showing any changes in the blood serum (precipitines). In future, as in the past, the typical anatomical picture in the enucleated sympathizing eye will have to be the proof that the inflammation of the second eye was a characteristic one caused by anaphylaxis.

But we gain a great deal toward the prophylaxis of the sympathetic ophthalmia. This will not depend upon the enucleation or exenteration of the injured and nearly blind eye, but upon the most thorough internal examination of every case of trauma oculi. Thus these anomalies may be combatted with the proper diatetic measures and other precautions, and we will be able to obtain the results that I have. For in the past four years not a single case of sympathetic ophthalmia has been observed in my clinic. Such precautions must also be observed in those cases of spontaneous irido-cyclitis where the inflammatory process is so severe that practical vision may no longer be expected.

NOTES.

I. I would like to add that after the publication of my first two articles, Kuemmel, in the vol. of Arch. of Ophth. appearing two months later, voiced a theory somewhat similar to mine although he knew nothing of my theory.

As I previously emphasized, Kuemmel's experiments apparently toward the same end as mine and employing the anaphylactic reaction, give identically the same results.

II. Joseph U. 47 yrs. old. Perforating injury of the left eye, corneal wound, piece of coal in the capsule of the lens, very slight manifestations of inflammation. 18X'09. Extraction of the foreign body and evacuation of a large amount of lens matter through a keratome incision. Healing without irritation. Dismissed with secondary.

In the beginning of April, 1910, following influenza, disturbance of vision and slight iritis in the right eye although the injured left eye showed no signs of irritation. Right eye; reaction to irritation, numerous precipitates on the posterior surface of the cornea. Left eye, some fine precipitates on Decemet's in an un-irritated eye. Increase of the lymphocytes (37%) at the expense of the polynuclear leucocytes (63%). Symptoms of irritation disappeared in a few days.

14V. Extraction in the left eye of the "Kapselchwarte," adherent to the corneal scar.

27V. Both eyes pale. A few precipitates present in the right. Left vitreous opacities and some blood in the anterior chamber. Vision, fingers in 2½ m.

I have to regard this case as an infectious (influenza) iritis.

III. To these must be added the case mentioned later in which trauma could not positively be excluded.

IV. To this class I have added those few cases in which there was irido-cyclitis in one eye while the other eye was affected with chorioiditis and vitreous opacities or cyclitis, in other words, a disease of the uvea without manifestations in the iris.

V. For the sake of completeness, I have compiled these cases

that have appeared in the literature of diseases of the uvea dependent upon auto-intoxication (46-57).

VI. I do not always regard iritis in association with empyema of the accessory sinuses as a mycotic or metastatic affair, but rather believe that the ocular disease is caused by the resorption of pus by the blood and that the resultant disease is a toxemia (also a form of auto-intoxication) just as indicanuria is a symptom of the resorption of products of albuminous decomposition, according to Jaksch.

VII. According to Jaksch, auto-toxicosis is that condition "wherein toxic substances are developed within the body from normal or pathological products, which in themselves are not toxic, and wherein normal or toxic physiological products are formed in a certain portion of the body in such large numbers that toxic symptoms appear in spite of the continuous excretions of such bodies."

VIII. Indol or indoxyl is a product of albuminous decomposition and is excreted in the urine combined with sulphuric acid or glycolonic acid as urinary indican. "From the decomposition of albumen varying amount of indolor skatol are formed. But the circumstances under which an excess of indol or an excess of skatol result are not known." (See V. Zeynek. Neubing's Handbuche der Koerper Fluessegkerten.)

The excretion in the urine of the pathological product which has been known as skatol-carbonic acid has recently been recognized as indolacetic acid and thereby the presence of pre-formed skatol bodies in the urine has become even more questionable.

V. Jaksch has proven that indol is not formed solely by albuminous decomposition in the intestine but may result from a pyogenic suppuration in the body.

IX. "While correcting proofs I ran across a very interesting article of J. Blum, "Newly discovered experimental means for the recognition and treatment of diseases due to auto-intoxication," Virchow's Arch. Bd. CLXII, P. 391, 1900. Blum has observed that milk fed animals after extirpation of the thyroid suffer less frequently from tetanus than meat-fed animals and regards this is an expression of enterogenous toxic action.

X. I have not used the material from my private practice in the above discussion, especially because a tubercular reaction could be but seldom carried out. But this, as well as the material I published formerly, merely served to confirm the views in regard to etiology, treatment and prophylaxis I have mentioned above.

VI. Schnabel (5) in an almost unknown publication of irido-cyclitis said that the new nomenclature advocated by Schirmer "injured the spirit and form of speech and complicated the possibility of understanding." He undoubtedly was right. We are accustomed to call the primarily diseased eyes, **A**, the sympathizing and the secondarily diseased, **B**, the sympathized. According to universal usages this should be reversed for if one says of **A** that it sympathizes with **B**, so is **A** sympathizing and **B** to whom sympathy is dealt, the sympathized. Thus the secondarily diseased eye **B** should be the sympathizing. This false nomenclature has now come into such usage that an international congress would be required to introduce new and more rational nomenclature. Therefore, I shall use Schirmer's designation.

XII. H. S. Gradle, in my clinic, examined the numerous cases of sympathizing irido-cyclitis in the pathological collection, and will make a complete report at a later date. But on the whole we could confirm the well known foundation of the anatomical picture. From my own experience I can add that numerous interesting steps occur between the two main forms of irido-cyclitis, and that a mild case of chronic spontaneous, so-called idiopathic irido-cyclitis can present a picture very similar to the sympathizing inflammation.

XIII. "A characteristic of all cases with a long interval is that

symptoms of irritation appear in the primary eye, now usually phthisical, coincident with the appearance of sympathetic inflammation (Schirmer 38)."

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PENNSYLVANIA STATE MEDICAL SOCIETY.

HARRISBURG, SEPTEMBER 26-28, 1911.

SECTION ON EYE, EAR, NOSE AND THROAT DISEASES.

Some Remarks on the Ocular Symptoms in Pituitary Body Diseases and Results of Treatment.

Dr. George E. de Schweinitz, Philadelphia.—While fully recognizing that nonacromegalic cases of pituitary body disease should present no difficulties in detection, I believe that bi-temporal hemianopsia and X-ray findings constitute the most potent features in the diagnosis. Otherwise unexplained amblyopia or blurred vision, sometimes of long duration, and often at first of one eye only, is a suggestive symptom; also a central scotoma, especially if of hemianopic type, again occurring in one visual field. Color temporal hemianopsia preceding loss of the form sense of the affected visual-field area, is also suggestive; as is extraocular muscle palsy, with or without exophthalmos of one or the other eye. Usually atrophy of the nerve-head with indications of an antecedent neuritis or choking of the disc is present. Nausea and headache, the latter often violent, frequently occur at an early stage. Disturbance of the sense of smell, exaggerated tendon reflexes, and (in women) amenorrhea or early cessation of menstruation, are frequent symptoms. While bitemporal hemianopsia is the common visual-field defect, homonymous hemianopsia is not excluded; and it may occur from backward extension of the growth with involvement of one optic tract.

DISCUSSION. Dr. Thomas B. Holloway, Philadelphia.—DeLapersonne and Cantonnet divided their symptoms into three groups: glandular and physical symptoms, and the mechanical effects; and the last group is the one that is of the most interest to ophthalmologists. In 1905, Kellierits reviewed fifty-two cases of growths in the pituitary and its vicinity, in which forty-five involved the hypophysis; and in one of these, a hemorrhage into the gland had occurred. Moskalew, in 1910, referred to five other cases.

I show these fields, as they illustrate types of fields other than the ordinary temporal hemianopsia that may be encountered in lesions of the hypophysis. In a case described by Sehnael, the fields are so changeable and of such a diverse character that he stated that an actual destruction of the fibers was quite

inconceivable; and suggested that possibly a toxic substance in the blood might produce a temporal hemianopsia in the same manner that certain toxins may, in some cases, produce central scotoma. He further intimates the possibility of this toxin's being hypophyseal in origin.

The erosion of the base of the skull and enlargement of the pituitary fossa is of interest, and has been known to occur in other conditions aside from pituitary tumor, and in aneurysm of the internal carotid; and Oppenheim has referred to it as the result of hydrocephalus. The characters of these various erosions have been particularly studied by Erdheim. Spiller, in referring to Zentmayer's case, has assigned, as one of the possible causes of the improvements in the fields of vision, the formation of an erosion at the base of the skull. Personally, I cannot understand how such an erosion would relieve these symptoms, unless it opened up some of the adjacent cavities or sinuses, when we would have the effects of a small decompression. In some of these cases, if we accept Schnabel's view, it may be that a toxemia has been neutralized or overcome; but a plausible explanation in at least certain cases may be that it is due to an alteration in certain cystic conditions. I am not referring now to the cases such as have been described by Dr. de Schweinitz and Dr. Fisher, where an undoubted improvement occurred during the internal administration of thyroid extract. At least three cases that are now on record suggest the possibility of associated cystic conditions, and these are the cases of J. F. Shoemaker, Erdheim, and D. J. Wood. While, in the case cited by the first-named reported, a sinus involvement cannot absolutely be excluded, the symptoms favored a pituitary poison, and two rhinological examinations gave negative results.

Dr. John F. Culp, Harrisburg.—In a recent paper by Hirsch of Munich read before the International Laryngological Congress in Berlin, entitled "The Internasal Operation for Removal of Tumors of the Hypophysis," the author gave a series of ten cases on which he had operated in this manner, the first operation dating back a year and a half. Out of these, there were two fatal results, because the tumors were malignant. The other patients made operative recoveries. In the majority of the cases, the vision was almost completely restored, and had remained in excellent condition until the time that the paper was read.

Dr. George E. de Schweinitz.—It is probable that the effect of thyroid extract in relieving tumors of the pituitary body depends upon the fact that many of these growths represent hyperplasias of the gland substance, and therefore are amenable to the influence of this drug. Theoretically, extract of pituitary body is the better drug; and, indeed, it has proved to be advantageous in many cases; but there seems no doubt, so far as my own experience goes, as well as the experience of other surgeons, that in the absence of this therapeutic agent, thyroid extract is an excellent remedy.

Some Fundus Changes Associated With Menstrual and Uterine Disorders.

Dr. Glendon R. Curry, Pittsburg.—My first case was one of neuritis and retinal edema, having its onset with metorrhagia, and subsiding promptly when the menstrual abnormality ceased. Choroiditis and retinal edema were associated with pregnancy. Later, a pessary was worn to correct uterine displacement. The removal of the pessary was followed by an attack of retinal and choroidal inflammation. When the uterine displacement was corrected, the ocular condition promptly subsided.

DISCUSSION. Dr. S. Lewis Ziegler, Philadelphia.—The subject promises great interest for us all, from two standpoints: First, in the relation of the eye to general disease; and second, because it comes under that class of disturbances of metabolism which—in part, at least—are due to perversion of the internal secretions, with consequent changes in the chemistry of the body fluids. Some of these cases of retinal effusion and hemorrhage are probably due to minute breaks in the blood vessels, somewhat similar to the cases that Eales, of Birmingham, has related as arising from constipation. While he claims that this is of reflex origin from splanchnic spasm, there is an undoubted absorption of certain corrosive chemicals arising from putrefactive changes in the bowel contents. These are carried to the vascular coats of the eye, thus causing a slight endarteritis and subsequent rupture of the vessels. There are also other lesions arising from uterine disease. I can recall one case of reflex irritation that originated an asthenopic condition of the eye, which could not be relieved by ocular treatment, since there was no fundus lesion or refractive error present in the eyes. I referred this case to the late Dr. Joseph Price, of Philadelphia.

who performed an operation on some portion of the uterine adnexa, which gave immediate relief from the ocular symptoms.

The question of vicarious menstruation has been referred to; and suppression of the menses has undoubtedly, in many instances, been the cause of these disturbances. Some, however, claim that vicarious menstruation does not occur. Nevertheless, ciliary and retinal hemorrhages recur at each menstrual period, and are often accompanied with other systematic disturbances. I have seen one such case, in which a series of intraocular hemorrhages, occurring at each menstrual period, gradually caused serious disturbance of the ciliary body and choroid, with eventual blurring of the vitreous and the formation of a vitreous membrane. These conditions are put down as obscure lesions or as disturbances of metabolism, but their true uterine origin is not looked for.

Dr. William Campbell Posey, Philadelphia.—I was much interested in Dr. Curry's recital of the history of his second case, in which he stated that notwithstanding there was blurring of the vision during three pregnancies, a healthy child was born at full term. As we all know, interference with vision during pregnancy is frequently occasioned by disease of the kidneys; but this is not always the case, and I have elsewhere called attention to a class of cases in which retinitis may occur without the presence of albumin in the urine. This happens when the liver or other organ apart from the kidneys is unequal to the task put upon it by the excessive tissue changes that accompany pregnancy; or when the kidneys, though diseased, have not yet excreted albumin. This atypical and often obscure form of toxemia manifests itself in early pregnancy by pernicious vomiting; later in persistent headache, failing vision, *muscae volitantes*, epigastric pain and restlessness. In these conditions an ophthalmoscopic examination is particularly indicated, and it is time that obstetricians should appreciate two facts: First, that changes in the eye-grounds that have been occasioned by renal disease and are almost certainly diagnostic of renal disease may precede the presence of albumin in the urine; and, second, that the ophthalmoscope may give evidence of disease of other organs than the kidneys that has been excited by the toxemia from pregnancy.

Optic atrophy after hemorrhage from the uterus is not unusual; indeed, it almost always results, if the hemorrhage is

repeated. In one case of postpartum hemorrhage under my care, in which vision sank to counting fingers at 2 mm., full visual acuity was regained several months later.

Dr. Edward B. Heckel, Pittsburg.—Considering the fundus changes that may accompany uterine disease, we should not be unmindful that some conditions may be set up by minute emboli that get into the circulation and find their way into these capillaries, producing disturbances of vision and fundus changes; and this may account for the detached retina found in renal disease accompanying pregnancy, which at times will attach itself again without any interference at all.

Dr. Glendon R. Curry, Pittsburg.—This patient had these attacks during three pregnancies and two subsequent attacks, each almost immediately after the pessary had been removed.

The Anomalies of Refraction and Their Relation to Abnormalities of Ocular Balance.

Dr. Samuel D. Risley, Philadelphia.—It is not unreasonable to expect that during development in an anomalously shaped orbit, not only would a great variety of modifications occur in the form of the eyeballs, which would determine their diameters and consequently alter the radii of the curvature of the cornea, but that they would as a mechanical necessity also lead to changes in the length and line of direction of the optic nerves, and modify the origin and attachment, the length and line of direction of the extraocular muscles. Great assistance in the discovery and treatment of these abnormalities is afforded by a definitely recognized standard for normal binocular vision. Having determined accurately the fault, one is often able to correct the error in balance, and so secure comfort by restoring a normal acuity of vision for each eye and a proper binocular balance. The ideal relation will be found in two ametropic eyes with a normal acuity of vision and a physiological range and region of accommodation and convergence.

DISCUSSION. Dr. G. Oram Ring, Philadelphia.—The problem is comfortable binocular vision; the basic point from which Dr. Risley proceeds, an ametropic eye with a so-called normal range and region of accommodation and convergence, which is recognized as the standard from which our study should be made.

The departure from a normal standard of binocular vision

may be grouped, for clinical purposes, according to Risley, as follows: (1) The disturbances occurring in eyes with the approach of presbyopia; (2) that which results from congenital abnormalities in the form of the eye-ball (ametropia); (3) disturbances that result from congenital abnormalities in the ocular muscles, possibly in their origin or attachments, length and direction, growing out of congenital disturbance of the osseous environment (the so-called structural, or insertion, abnormalities of Duane), and (4) those which result from disease, recent or remote, and affect the muscles themselves or their innervation.

The arbitrarily placed presbyopic age, with its disturbed relation in accommodation and convergence, with the possibility of separating the focussing power of each eye from the convergence, notwithstanding the functions are under the same innervation and the sometimes absent asthenopic symptoms in strabismic eyes, where the convergence impulse is no longer in evidence, are clearly stated.

A point of importance is the relation of abduction and adduction. Dr. Risley regards this relation as approximately one to three, which he now again emphasizes. It is, of course, not claimed that by appropriate exercise the average strength of the interni cannot be markedly increased beyond a so-called average balance; but what it is desired to measure and use as a standard is the normal abducting power, and not the utmost strength of the interni. When this relationship was established, it was based upon an exhaustive series of examinations, in which orthophoria was shown to exist at six meters by the Maddox rod, vertical diplopia, and cover test, the test being made by the aid of the optometer, the eyes being in their proper position and accurately corrected; so that it seems that this dictum should be accepted as final.

Disturbances of equilibrium, to quote Fuchs, may occur as an excess or as an enfeeblement of convergence; in other words, as a latent convergence (esophoria) or as a latent divergence (exophoria). The proper correction of refraction errors alone eliminates many of the low degrees of muscle in balance, or the so-called relative insufficiencies. Nevertheless, the claim of Roosa that this procedure is alone adequate, and that the muscle error has no independent existence, is as far from a correct analysis of the situation as was Steven's claim that the correc-

tion of the muscle imbalance would frequently eliminate the need of refraction correction.

In hyperopic or hyperopic astigmatic eyes, the displaced range and region of accommodation with relative exophoria, due to relative insufficiency of the interni, calls for a reduction of the full correction for a time, until a new order of muscle balance is produced; or, preferably, as claimed by the essayist, approximately full correction or only reduction enough to induce parallelism, the glass being ordered under a mydriatic, with prismatic exercises for the relative insufficiency of the interni.

Duane's dictum that prisms, base in, produce convergence insufficiency, and those base out, convergence excess, constitutes reason for their avoidance; but, if used, the base should be toward the muscle to be aided, and the apex toward the muscle to be weakened. The latter will rarely be called for in functional cases, and should be largely reserved for structural ones.

The absolute insufficiencies of Risley (structural or insertional abnormalities of Duane), that which the most careful refraction correction and muscle training fails to relieve are those probably caused by distortion of the skull. In the early study of this subject, the essayist, in connection with the late lamented Dr. Harrison Allen, was at pains to measure several hundred skulls, noting the varying sizes of the orbits, when it was concluded that it was most reasonable to suppose that any anomalously shaped orbits were most likely to induce modifications in the form and shape of the eye-balls, and in the length, origin and region of attachment of the muscles—conditions that were sure to induce disturbances of motility. This study was supplemented by a careful series of measurements of heads by hatters, and the departures from the normal were such as to frequently appear most grotesque.

It is in the group of muscle abnormalities associated with and influenced by some such defect that we have the most difficult problems, in which the asthenopia is not wholly relieved by refraction correction, even under a prolonged mydriatic, and in which prism practice promises but little. They are thought by Dr. de Schweinitz to represent a limited number, and the claim is made that they are growing less with improving methods; but in view of the anatomic abnormalities involved, it is questionable whether they will not continue to constitute a most difficult problem, requiring not only the most accurate refraction correc-

tion, but also, at times, the aid of vertically acting prisms or, if deemed necessary, horizontally acting prisms—and, as a last resort, operative interference in tenotomy or advancement, according to the result of the study, convergence excess or divergence insufficiency, divergence excess or convergence insufficiency.

A study of the refraction errors in patients over forty-five years of age can rarely be considered adequate or complete, and sometimes not in persons over that age, unless such study is made under complete mydriasis.

Dr. Wendell Reber, Philadelphia.—There is a very close approximation to the normal condition in the eyes of the vast majority who come to us for refraction. In the ideal eye, if the patient accommodates for one meter, he must converge for one meter; and if he accommodates for half a meter, he must converge for half a meter, and so on. Nature creates for each individual his individual relation between accommodation and convergence. When we put correction upon such a patient, we have broken into the relation that nature has established for that individual between these two forces; and this occasions the difficulty that we so often have in persuading many of our patients to continue with their glasses; hence full correction in the vast majority of cases is impossible. A relative insufficiency of convergence is established in practically all of these cases during the first six or eight weeks after they put on glasses and establish for themselves a new relation between accommodation and convergence.

As to the excellent results following prism training in such cases of accommodative esophoria, I do not think that there could be any discussion whatever. I come now to the anatomic exophoria: I have a feeling that anatomic exophoria (which I think is a better name than any proposed, because it depends upon anatomic peculiarities) has a disposition to be greater at the reading distance than for infinity.

In one thing, I cannot agree with the reader of the paper; and that is, that in these cases asthenopic symptoms are not improved by prism training. I think that the latter is worth a trial in these anatomic cases. I do not believe that more than one out of five, or three out of ten, get the benefit that we would expect; but there is an excellent clinical fact to be noted in these instances, and that is that if the patients' symptoms are aggravated by prism training, it is the indication to put prisms in their glasses in the position of rest for constant wear.

The relation of abduction to adduction of three to one, I think, is quite as high as it should be; and I am rather skeptical as to whether it is more than two and a half to one.

Four, five or six years ago (I have forgotten how long now), I called attention at Cleveland to the existence of family exophoria. I showed family trees of three generations in which the exophoria had come down in practically like degree.

Refraction and the Use of Cycloplegics With Special Mention of Hyoscine.

Dr. Clarence M. Harris, Johnstown.—Corrections of Refraction errors should be adapted to the needs of the individual. Hence, a careful history-taking, exhaustive methods of testing, the use of the ophthalmoscope in every case, and a close estimate of the patient's general condition are necessary. The proper use of cycloplegics is very important. I have come to depend upon hyoscine and homatropin. Properly used, hyoscine is equal to atropin, and in many instances superior to homatropin.

DISCUSSION. Dr. Wendell Reber, Philadelphia.—There is the greatest difference of opinion among the members of the ophthalmic profession as to the quality, strength and manner of using cycloplegics or mydriatics.

Careful history-taking is important as well as the value of repeated tests.

I have practically abandoned homatropin as a cycloplegic. It is absolutely untrustworthy unless properly used. What I mean by properly used is Dr. Jackson's dictum of ten instillations of a strong solution at intervals of from six to ten minutes.

Hyoscine has been my reliance for six or seven years, in a one-tenth per cent solution (one-half grain to the ounce), with five grains of cocaine hydrochloride. As stated by the essayist, this proportion of cocaine does not cloud the cornea, and yet does have enough effect to allow the mydriatic to osmose into the eye. It does not appreciably alter the intraocular tension. The hyoscine solution may be given for home use, in which case I reduce the strength one-half. For office use, it is employed twice, at intervals of twenty minutes, as Dr. Harris has described. If used for two instillations, the patient has the use of his eyes again within twenty-four hours. If used at home, it should be instilled before retiring on the night be-

fore the office visit, just after getting up that morning, and immediately before starting for the office.

Dr. Lewis H. Taylor, Wilkes-Barre.—A number of years ago I began to use homatropin. I always prepare the solution myself from the drug, which I have in very small vials. I have the correct amount of the drug in each vial, and add the water at the time of use. I now find very good results from the use of homatropin in such circumstances; so I am employing it more than I ever did before in my practice.

I am glad to approve of a statement that the essayist made, which Dr. Reber has emphasized, as to the importance of more than a single test, whether it be with or without the use of a cyclopegic, even in cases in which we are simply fitting presbyopic glasses. I never, if I can avoid it, fit a patient with one test; and very rarely, with two tests in the same day. I usually insist upon the patient's coming again another day. Even if I am satisfied that I have a correct test in an elderly patient, I want to see him again, in order to confirm that work, if for nothing more. We have to educate the patient to do his part, and to know what we are trying to do; so it is important for us to make more than one test. I do say, however, that at the present time, in regard to the cyclopegic itself, I am fairly well satisfied with homatropin.

Dr. Samuel D. Risley, Philadelphia.—I am glad to know that Dr. Reber has under consideration a study of the physiological properties of the mydriatics. It is possible that he may find help in such a study, if he has at his command a volume of the Transactions of the American Ophthalmological Society. He will there find a series of papers in which are set forth the results of investigations made on the relative value of duboisin and atropin; another paper on the properties of homatropin; another, on the sulphate of hyoseyamin as a mydriatic; and fourth, an elaborate statistical paper on the value of the mydriatics as cyclopegic and therapeutic agents. Also, in the Medical News of about the same period, there is a paper on the medical properties of these drugs, showing that duboisin and hyoseyamin are isomenic, but that their various alkaloids polarize the light differently and have different physiological action, both as to the rapidity with which they paralyze the accommodation and as to the duration of the paralysis, which vary greatly. These statistics are based upon the careful observation of at least one

hundred cases, all of which were patiently observed day by day, and curves constructed; first, to show the rapidity with which the paralysis of accommodation was accomplished and, secondly, to show the relative rapidity of the disappearance of their influence.

The object of using these drugs is not alone for their cyclopegic purposes. A large number of asthenopic patients have congested, fluffy eyegrounds; have suffered from asthenopia for long periods of time; and cannot be expected to recover in a few hours, or even in a few days. I feel, therefore, that the hurry-up methods that are so frequently recommended are not desirable. In a large number of cases, the function of the hydropiatic is to place the eyes at rest and keep them in that condition, by rapid instillations, continued long enough to secure a subsidence of the irritation and the pathological condition of the fundus. It is practically impossible to secure any accurate determination of the static refraction of these irritable eyes until the congestion and fluffiness of the fundus have disappeared. This may be accomplished, if homatropin be used in the eyes long enough and instilled frequently enough; but in my judgment, it may be more satisfactorily accomplished by the use of hyoseyamin and atropin, and at no greater loss of time. My former studies have shown that hyoseyamin and hyosein have the peculiar property of securing a complete paralysis of accommodation more rapidly than either of the other cyclopegics, and hold it even more firmly than even atropin will do, or duboisin. When pure hyoseyamin was secured, the time required for recovery was between seven and eight days in one hundred cases that I have measured; whereas, with atropin, the total paralysis was not accomplished so rapidly, and the influence of the drug did not disappear until fourteen days had elapsed. It is to be borne in mind, however, that all of the members of the Solanaceae group may be modified by methods of manufacture, or in dispensing the drug. For example, hyoseyamin may be converted into atropin by too great an amount of heat in dispensing; but if it has been extracted in the presence of an alkali, it no longer polarizes the light as pure hyoseyamin should do. Much of the uncertainty depends upon these facts.

Dr. Edward Stierin, Pittsburg.—Formerly I used to depend upon a druggist to put up solutions; but now I put homa-

tropin up in the office, as Dr. Taylor does. It is instilled six times, at ten-minute intervals; and I get thorough paralysis of the accommodation in most cases. It does deteriorate, if kept long, and druggists cannot always be relied upon to make it up properly.

Dr. John Neely Rhoads, Philadelphia.—I want to say that I always use homatropin, except in the case of children.

Dr. Clarence M. Harris, Johnstown.—If Dr. Risley would tell us more about these alkaloids, I should like it. Most of my information came from Merck. Duboisin is a mixture, which accounts for its unreliability. Hyoscin, they state, is procured from the various solanaceae as is also scopolamin. The latter used to be a name for an impure hyoscin. We get the same thing now, under either label; and both these products, if pure, deviate polarized light twenty degrees.

Dr. Risley.—Scopolamin was originally another manufacturer's name for hyoscin.

Dr. Harris.—They tell me that if the drug registers less than twenty degrees, it has some impurity in it that does not rotate the light at all or has a tendency to rotate it in the opposite direction, thereby making the proper rotation less. That was my main object, really, in choosing this subject, to call attention to the pharmacology of these drugs. We should require certain standards for these drugs and have reliable manufacturers list them. We may then prescribe these particular drugs, and nothing else, and insist on getting them.

Recurrent Third-Nerve Paralysis, With Report of a Case.

Dr. J. Ferdinand Klinedinst, York.—The patient was a female, aged fifteen years, who has had since childhood annual attacks of paralysis of the right third nerve, always occurring in early spring time. The attacks always begin with severe pain, extending from the back of the mastoid region, over the temporal region, to the right eye. The paralysis lasts from ten days to two weeks. No other members of the family have had similar paralysis. There is a family history of migraine, however. It is probably a case of migraine ophthalmoplegia.

DISCUSSION. Dr. William Campbell Posey, Philadelphia.—Dr. Klinedinst's case is, I believe, a typical instance of that rare condition which is known as recurrent oculomotor palsy; or, as Charcot termed it, "migraine ophthalmoplegia."

In his case, the third nerve is completely paralyzed and no other of the ocular nerves is affected. The paralysis, however, is not always limited to the third nerve; indeed, in a few rare cases, that nerve has escaped entirely and the fourth or the sixth nerve has been implicated. Ordinarily, when the fourth nerve is involved, it is in association with the third. Paralysis of the sixth nerve has been observed in a small number of cases only. While usually all the attacks occur on one side, the paralysis may occur on opposite sides at different times in the same case. Recovery of all the functions of the paralyzed muscles is usually complete after each attack. The attacks in the case under discussion occurred annually, and this tendency to recur with a distinct periodicity has been observed in many of the reported cases, but not in all; for in many, the attacks occurred most irregularly and at very long intervals.

Lloyd, in "The Eye and Nervous System," states that the majority of the cases, as in the case before us, date their origin from childhood or even from infancy; and de Schweinitz has reported a very interesting case that began in an infant of a year and a half old and, after repeated attacks, left a permanent paralysis of the third nerve. In Dr. Klinedinst's case, as is the rule, there was no visual aura, such as accompanies the ordinary form of migraine; nor did his patient suffer from nausea and vomiting.

Lloyd remarks upon the rarity with which anesthesia of the fifth nerve is found, and says that when we consider the fact that the nerve-storm visits a large part of its fury on the fifth nerve, causing the intense headache, and that the cause, whatever it is, is sufficient to paralyze motor nerves, it seems rather remarkable that the sensory nerve is not also paralyzed. The diagnosis of typical cases of migraine ophthalmoplegia should not be difficult. It should be remembered, however, that transient loss of power in eye muscles is often seen in tabes, and that the palsies resulting from brain tumors and brain syphilis are often attended with attacks of pain. The prognosis should always be guarded, and the likelihood of the palsy's persisting or that more serious disease of the brain may arise should always be carefully considered.

In 1905, Dr. Spiller and I reported a case of recurrent oculomotor palsy, in which there was almost complete right ptosis and paresis of the inferior obliques and internal rectus

muscles of the same side, and which was especially interesting in regard to the migrainous attacks. This patient, a man about thirty years of age, had suffered from ordinary attacks of migraine with visual aura from his fifteenth year, but had had no attack for ten years previous to the appearance of the paresis of his ocular muscles.

The etiology and pathology of the disease have always been obscure, and in recent years there has even been a tendency to dispute the relationship of so-called recurrent oculomotor palsy with migraine; and Herbert Fisher has proposed to designate the symptom complex as transient ophthalmoplegia externa associated with attacks of severe headache. But few of the cases have come to autopsy. In one, Gübler found plastic exudation in the basal subarachnoid spaces, with fibrous adhesions around the origin of the third nerve, extending forward to the chiasma. In others, postmortem examinations have shown a fibroma or chondro-fibroma among the fibres of the nerve involved. Nuclear lesions have been searched for, but never found.

In a second case, which I had an opportunity of studying with Dr. Spiller some years ago, the attacks of pain and the attending paralysis of the eye muscle appeared to have been excited by a postethmoidal and sphenoidal sinusitis. A case of complete third nerve palsy reported by Coombs-Knapp appears to have had a similar origin.

The Pupil in Health and Disease.

Dr. Edward Stieren, Pittsburg.—Section of the third cranial nerve causes dilatation of the pupil, due to paralysis of the sphincter, and stimulation of this nerve contracts the pupil; while section of the cervical sympathetic causes contraction of the pupil by paralyzing the dilator, and stimulation of the cervical sympathetic causes dilatation of the pupil—as do also certain emotions that act on the sympathetic system. The pupil of a normal eye will contract when light is thrown upon it, no matter what portion of the retina is illuminated. The reaction to light is always symmetrical, though the illuminated pupil usually becomes smaller than the one remaining in the dark. In tabes and in general paralysis, the light reflex is often abolished. The pupils do, however, at the same time react to accommodation and convergence. This syndrome is known as the Argyll-Robertson pupil. For the light reflex to be present

and the convergence reflex absent, is a condition that occurs but rarely, and only when one eye is lost or blind. Among the other pupillary reactions, an important aid to the diagnosis of lesions of the optic tract is Wernicke's pupil reflex.

The pupils of healthy individuals are usually symmetrical in size and shape. They are larger in childhood than in old age. Dilated pupils in the aged, or contracted pupils in the young, when not due to local ocular trouble or to drugs, calls for a thorough examination of the nervous system. A considerable deviation in the normal position of the pupil often occurs after cataract operations. The condition of the pupil during the administration of chloroform is all important, as dilatation of the pupil under complete narcosis with no response to light or accommodation is a danger signal.

DISCUSSION. Dr. William Campbell Posey, Philadelphia. —Dr. Stieren has covered so much ground in his paper that it is difficult to discuss it fully. There are, however, several phases that seem to me to merit special mention. One is the aid that the pupil gives in diagnosing paresis. Inequality or irregularity in the size or shape of the pupils in an adult, with perhaps some slight disturbance in their reaction to light, either directly or indirectly, should always awaken the suspicion of paresis; or, if paresis be not the nervous lesion, some other equally important disease of the cerebrospinal system may be present. But a few days ago, I saw an apparently healthy young man who came for the correction of an error in refraction, in whom the presence of a persistent irregularity in the size of his pupils at various times awakened in me the suspicion of some trouble with his central nervous system. Further inquiry elicited the fact that he was the subject of epilepsy. As we all know, the pupillary signs often antedate all other symptoms of tabes; and mention need not be made before this audience of the value of the Argyll-Robertson pupil. The aid that the pupil may give in making the diagnosis between tabes and cerebrospinal syphilis, a differentiation that is not always easy, is not so generally recognized; and it may not be without interest, if I cite as my experience that the Argyll-Robertson pupil is generally indicative of tabes; unilateral ophthalmoplegia interna, of syphilis. Inequalities in the size of the pupil and disturbance in the reaction are found in the early

stages of cerebral syphilis, often associated with optic neuritis; while palsies of the extraocular muscles, as a rule, belong to the later stages. When syphilitic palsies do occur in the early stages, they develop more gradually and persist longer tabetic palsies manifesting a tendency toward speedy disappearance and frequent recurrence. Conjugate deviations and ophthalmoplegia externa are caused almost exclusively by syphilis.

A unilateral iridocycloplegia may remain the one symptom of syphilis of the nervous system for years; and I have in mind, in this connection, the case of a young lawyer who consulted me some fifteen years ago for an enlargement of the right pupil, and who confessed to syphilis some years previously. He still suffers from the paralysis of the iris, but without other manifestation of lues.

I think that I have demonstrated the Wernicke sign on several occasions, but the test is so difficult of demonstration that it is hard to speak without reservation. If the prismatic test of Saenger works out as well as the author claims, it will certainly be much more satisfactory than the uncertain reaction that we get from the pupillary inaction sign.

Dr. Wendell Reber, Philadelphia.—At one time I made a study of the pupillary status in one hundred recruits for the United States Army, in order to establish a normal standard. This study showed that the inequalities between the two pupils were very small indeed, however, and practically negative.

There has been one point brought out by Dr. Stieren that I have seldom seen brought out. If we consider the orbit as well as the eyeball we find there the lenticular, or ciliary, ganglion. It is interesting that both the contractor and the dilator fibers must be distributed to that station before they go to the eye. This fact will have to be reckoned with before we have an absolutely adequate explanation. From the attention that it is receiving from pathologists and neuropathologists, it must be of greater importance than we have thought. I think that this ganglion is improperly called the lenticular ganglion, because many persons think of the lenticular nucleus in the medulla and get it mixed up. It is properly the ciliary ganglion.

Dr. Stieren makes the very strong point that pupils small in children or large in old age are very suspicious. The reason that they are small in old age is because of the loss of tonic-

in the iris, and of the fact that the superior cervical ganglion degenerates in old age. A pupil that does not dilate in the dark should be always suspected.

As to the Wernicke pupil, it is extremely difficult to elicit even when present.

Dr. Edward B. Heckel, Pittsburg.—With reference to the Wernicke sign, I have never been able to elicit it to my full satisfaction.

When we see patients with unequal pupillary reflexes and disturbances of light reflex, we should refer them to a competent neurologist for further examination.

The Blackboard Evil; The Remedy. The Copybook Evil; The Remedy.

Dr. John Neely Rhoads, Philadelphia.—Children and everyone else should learn to avoid glare, no matter what its source. To avoid the glare that comes from the reflection of light from the blackboard, the latter should be pulled slightly away from the wall at its base, so as to reflect the light upward. Children should never be required to copy script from the blackboard; because, in order for a child forty feet away to see them, the letter would have to have lines a quarter of an inch thick. To be in proportion, the letters would then have to be five or six inches high. Besides, it is a constant strain on the accommodation. The copybook evil is just a little less serious than the blackboard evil. The writing of the child becomes less and less good as he writes farther and farther down the page. The remedy is to have the copies inserted in a carrier on a ruler that can be moved down the page, so as to cover the last line of writing. Every child should be taught to write and cipher without the use of his eyes. This will enable him to do a good part of his work without looking at it, and thus avoid a considerable part of the strain upon his sight.

DISCUSSION. Dr. Fremont W. Frankhauser, Reading.—One of the ways of preventing some of the rays from the blackboard from striking the eyes of the children is a procedure that I advocated in Reading, and which has been adopted. The blackboard is not used continuously, but for a short period at a time; and when not in use, it is covered by a light green curtain. When a child raises his eyes, he is not looking at a black surface

with a white reflection from the light, but at a green surface, which is soothing to the eyes.

Another error in the copy-books is that they are nearly all made of glazed paper; but one of the things causing the greatest reflection of light is the white concrete pavements and walls in so many cities and towns. When the bright sunlight strikes them, they give a reflection that is always painful. In Reading, lampblack is being mixed with the concrete so as to make a slate-colored pavement, which gives no sharp reflection in any kind of light.

Dr. Edward B. Heekel, Pittsburg.—I want to say a word about the teaching of writing, which is generally overlooked by teachers of penmanship in both public and private schools, though perhaps less in private schools than in public. The teachers seem to lose sight of the fact that the hand-writing of the individual is as much a part of the individual as is his personality. No training in the world will make him write in any other way. If this were not so, it would be impossible to identify a man by his signature. I think that there is too much teaching of penmanship.

Regarding glare from the pavements, I think that this is a point very well taken. I would say, however, that instead of using lamp-black to mix with the concrete, English Venetian red can be used.

Small Round-Cell Myosarcoma of the Orbit, With Extension Into the Eyeball.

Dr. William Campbell Posey, Philadelphia.—The growth first manifested itself as an orbital cellulitis when the patient, a girl of fifteen, was less than a year old. At that time, there were marked proptosis and all the signs of an orbital abscess; but the swelling gradually subsided, and the eye apparently regained its normal position. Nothing unusual except a slight staring-expression in the affected eye, brought on by exertion, was noted until, at the age of fourteen years, the proptosis reappeared without apparent cause and the vision became dimmed. Signs of an orbital growth, with the appearance of stasis in the papillo-maculary region of the affected eye, were noted. Krönlein's operation was performed, revealing an irregular mass of small nodular swellings just below the optic nerve, and extending along the floor of the orbit. The mass being judged

to be sarcomatous, enucleation and partial evisceration of the orbit followed. The wound healed promptly; and there has been no recurrence, twenty-one months having elapsed since the operation.

SYMPOSIUM: DISEASES OF THE ORBIT.

Orbital Diseases Secondary to Sinusitis.

Dr. Wendell Reber, Philadelphia.—All manner of extra and intra-ocular diseases are today traceable to suppurative and non-suppurative diseases of the accessory sinuses. Often it will require the most prolonged study on the part of the rhinologist to finally establish the relation. Even in the presence of seemingly negative findings, intra-nasal treatment that will deplete the mucosa to the fullest extent should be instituted. In ocular conditions of apparently obscure origin, no case can be said to have been properly studied until the accessory sinuses have been shown to be plainly non-causative.

Orbital Cellulitis from Causes Other Than Sinusitis.

Dr. Edward B. Heckel, Pittsburg.—Orbital cellulitis arising from causes other than sinusitis does not necessarily lead to suppuration or abscess-formation. It may result only in an inflammation and a temporary exophthalmos caused by an edema. These other causes are trauma, carious teeth, abscess of the teeth, osteomyelitis, facial erysipelas, meningitis, abscess of the brain, exanthemata and continued fevers, metastasis, and actinomycosis. The bacteriology of orbital cellulitis in these cases differs, as a rule from that in the class of cases directly associated with sinus disease; as in these cases the pneumococci are most frequently found. The cellulitis accompanying pneumonia and influenza is not always caused by the pneumococcus and the influenza bacillus. The organisms most frequently found are pneumococci, streptococci, and staphylococci; the rarer ones are the influenza and the Klebs-Loeffler bacilli and, still rarer, the meningococci.

The Relation of Ethmoid Disease to Orbital Conditions.

Dr. Ross Hall Skillern, Philadelphia.—The circulatory and nervous anatomy are such as to permit of the passage of infection from the mucosa of the ethmoid cells to the orbit. The following are some of the pathological conditions that affect the ethmoid cells: Polypoid hypertrophies and polyps, frank or closed empyema, polypoid growth with suppuration, mucocele,

and malignant growths. The infection extends by mechanical pressure, by continuity, by contiguity, and through the blood-lymph channels (toxemia.) When the infection reaches the periosteum of the orbital side, one of two things occurs: (1) If the infecting process is not exceptionally virulent, the periosteum acts as a barrier and prevents perforation, guiding the purulent secretion anteriorly along the bone until it finally points externally through the upper eyelid; (2) should the infection prove too severe for the periosteum to halt it in its progress, the orbital contents quickly become involved, with the appearance of an orbital phlegmon, all of the orbital tissues being involved in one great purulent mass. If this condition is allowed to form, total loss of the eye invariably follows. When extension through the blood and lymph channels occurs alone, two foci of inflammation, without any apparent connection, are present; one at the original seat in the ethmoid; and the other, the secondary, in some portion of the orbit. It is a question whether infection from a herd of pus in the ethmoid capsule ever causes ophthalmic complications solely through the medium of the lymph or blood vessels. Usually the other modes of extension are at least coincident. Even in malignant disease, extension through the circulation is not pre-eminently marked, owing to the extreme thinness of the separating partition.

DISCUSSION. Dr. John B. Corser, Scranton.—I wish to speak of an interesting case that has come to my notice. A brother physician was doing a curettage of the ethmoids on the right side for disease of these parts; and while he was operating, the patient suddenly complained of blindness in the eye of that side. Soon the eye began to proptose, the upper lid particularly. I was called to see the case an hour after the accident, and found that the eye was literally blind. The pupil was dilated, and the eye was proptosed, although the swollen upper lid covered the eye. The eye was immobile. A diagnosis of hemorrhage was made, and seemed to be quite proper. Half an hour afterward, under general anesthesia, an incision was made in the upper lid just below the upper margin of the orbit. No blood was found in that part. In fact, we had no bleeding from the wound; but in using a blind dissector back in the posterior ethmoid region on the inner side of the orbit, there was marked flow of blood into the nose and the upper

lid become softer. The vision became better as she got up and around; and at present it is practically normal, though all objects appear gray to her. The nerve-head is gray. The field, however, is full. This case is rather interesting and might serve to keep us mindful of the posterior ethmoidal blood vessels that evidently caused the trouble.

Dr. Howard F. Pyfer, Norristown.—With all patients that have repeated attacks of stuffiness of the nose with sinus involvement, indicated by pain and pressure, a resection of the middle turbinate is advisable. If the ethmoidal cells show disease, remove them at the same operation. The fear of thrombosis and cerebral complications should not deter you from doing a radical intranasal operation. Should this fail to relieve your patient, open the maxillary and frontal sinuses with a rasp; and, if necessary, the sphenoidal cells, with a Rajak biting forceps. Following these procedures, your patient will get well.

Dr. Reber.—A point not sufficiently dwelt upon is the transient serous sinusitis that some persons present. People have these attacks, and the interesting fact is that they will be practically incapacitated from the use of their eyes for three or four days, seemingly without any demonstrable cause from the ophthalmic standpoint I have been following these cases. If such patients got atropia, their ocular symptoms are soon relieved—a therapeutic that cannot do harm and is often of diagnostic value.

Preventable Blindness.

Dr. William W. Blair, Pittsburg.—The medical profession is laboring most successfully in the prevention of diseases, thus destroying the necessity for its own existence. Ophthalmology is not lagging in the rear, as witnessed by organized efforts for study and prevention. The lines of activity along which it is possible to accomplish prevention that are at present open to thoughtful men include hygiene and care of the eyes, ophthalmia neonatorum, trachoma, Fourth of July accidents, and industrial blindness. It would be well if our State Society would make an organized effort toward prevention of blindness through a subdivision of the work.

DISCUSSION. Dr. Wendell Reber, Philadelphia.—As to the copper injuries with which we are confronted, Hirschberg and also Sweet have shown that copper cannot be extracted by

means of the electromagnet, as can steel; and that there is a chemical reaction to this foreign body in the eyes. I know that Dr. Wm. N. Sweet is very pessimistic concerning all copper foreign bodies in the eye.

If the employer can induce his employees to do rational, sensible things, there will be many less accidents and much less liability on the part of the employer. Whereas they have formerly resisted strenuously the enactment of an Employers' Liability Act, it should be easy to get the fullest assistance from employers in these circumstances.

One photograph that impressed me particularly was the emery wheel with the sign, "Beware! Danger!" There is a certain percentage of fools per one thousand of population everywhere. There are men who, in spite of signs, will expose themselves; and they will do so, in spite of every bit of preventive influence. The average man, however, I believe to be amenable to reason.

Dr. Howard F. Pyfer, Norristown.—This subject has been brought before our Montgomery County Medical Society, and the use of one per cent nitrate of silver recommended in all new-born babies' eyes, whether or not infection was suspected. The opposition to its use was surprising. The general medical men, with few exceptions, feared the theoretical reaction on the eye and the transitory pain that would be produced. Some of the members present reported cases of ophthalmia with the loss of both eyes, yet the danger of infection seemed less to their medical minds than the imaginary evils of the nitrate.

When in Indianapolis, in conversation with Dr. J. W. Hart, he spoke about the compulsory legislation in regard to the use of nitrate of silver in the eyes of the new born. He reported two cases in which a preparation of nitrate of silver in solution had been used, where evaporation had increased the strength of the nitrate. The result was an acute inflammation of the eye, requiring very vigorous treatment to save the eyes. The lesson to be learned in our enthusiastic endorsement of Crede's method is the putting up of nitrate of silver, two grains, in two-drachm homeopathic vials. Keep it in the obstetrical bag until ready to use, when water can be added to make the solution.

When a patient is referred to a specialist after an infection of ophthalmia, I wish to protest against the use of argyrol and

protargol in the place of nitrate of silver, to combat the infection. These organic salts may be used in addition to nitrate of silver, but nitrate of silver should be our sheet-anchor. After the corneal epithelium is denuded, weaker solutions of silver should be used.

Trachoma will not wait until the social conditions of our foreigners become satisfactory. We must meet conditions as they exist at present. Time is a great educator; and from the tenements and from the huts, rational hygienic homes will develop. In the meantime, trachoma can be treated amid the worse surroundings, and the disease checked, though not completely cured. A prescription of a ten per cent solution of sulphate of copper in glycerin, having the patient mix one drop of this solution with twenty drops of water and instill twice a day, will do wonders in preventing the disease sequelae. Should our efforts toward better hygienic conditions fail or be held in abeyance, the present acute condition would be met, and the patient's time, money and eyes saved until the dawn of a better day.

Dr. Edward B. Heckel, Pittsburg.—I am glad that the essayist has had the courage to include the general practitioners along with the midwives in the blame for the number of cases of blindness resulting from ophthalmia neonatorum. Every man who does eye work has as many cases come to him through the neglect of the general practitioner as through that of the midwife, and perhaps more; and the cause is that there are a certain number of cases of ophthalmia occurring in the new-born that are not very virulent, and get along nicely, under other treatment. They, however, would get along nicely if let entirely alone. The general practitioner recognizes such a case as one of conjunctivitis in the new-born, and imagines that such cases are all alike. Finally, he gets a case of real gonococcus infection, and does not recognize it; and the oculist has to shoulder the blame, when the child becomes blind. If this fact were driven home to the general practitioners, we might do good. It would be a good thing if every society should consider the subject at least once a year. Every now and then, we meet a man in general practice who has never seen a case. I saw a man with a large practice in rather a good part of the city of Pittsburg, who had been practising for seventeen years, and this was his first case. On the other hand, we have an

obstetrician with whom I have talked, who says that he uses the Crede method in every case, whether in public or in private practice. He uses the silver nitrate in every case; and, through the efficient aid of our Health Department, he has provided for the free distribution of nitrate of silver to anyone who asks for it. It is put up in hermetically sealed glass tubes with a file on the neck, so that the tube can be broken open easily.

I quite agree with Dr. Blair and Dr. Harris that trachoma is a sociological question. When you get active cases, however, they cannot be treated sociologically. I agree with the last speaker, Dr. Pyfer, on that point; but more can be done by prevention than by actual cure. The number of cases of the disease in this country has been much diminished within the last few years, because the Government prevents the entrance of immigrants with trachoma. It is now a reportable disease.

As to industrial injuries and accidents, these photographs tell more than words can. Human nature is peculiar. The person who handles dynamite, at first handles it carefully. Later, he will take a wagon-load of it and drive over a stormy road; and, all of a sudden, the man is gone. It is the same with other things to prevent accidents. It is difficult to get the men to realize the importance of wearing protective glasses, for instance. They have them in Pittsburg everywhere. In a stone-cutter's yard, I saw that every man wore protective goggles made of glass. I think that it would be better to have them made of a good grade of mica; for the glass might be cracked, and the patient injured by this. After all, it is a matter of education.

Dr. John B. Corser, Scranton.—In employing dynamite in our section of the country, they use a brass-covered cartridge to explode the dynamite. In the country about Scranton, more eyes are lost by the copper that is thrown from this cartridge in the explosion than from the use of dynamite in any other way. The accidents often happen to children, who find these copper caps where they have been carelessly left by the workmen, and explode them innocently. We have no method of removing these pieces of copper from the eye, unless we can see them and get at them with the forceps; and if it would be possible for this committee to interview the makers of these cartridges and ask them to have them made of steel or, better, iron, I am sure that in my own small practice, it would save four eyes a year.

Dr. Clarence M. Harris, Johnstown.—I find that the men's objection to wearing goggles is not without reason at times. It is very hard to work in such conditions and see things plainly through them. They get smeared up with dust and steam, and cannot be cleaned easily in a shop.

I feel that trachoma is much on the increase, especially among the foreigners in the locality in which I am located. They live together in crowded tenements, their beds never being unoccupied long enough to get cold; and one case of trachoma may thus infect an entire household. The municipal authorities ought to take up the matter and compel these people to live right. I have reason to believe that very few of these cases are reported. In fact, some health officers do not know what you are talking about, when a case of trachoma is reported.

Dr. William F. Robeson, Pittsburg.—I happen to be on the Board of Managers of the Blind School at Pittsburg. Formerly each child was compelled to have a card of admission upon which were a number of questions filled out by the parents. One of these questions was, "What was the cause of blindness?" Almost invariably, the reply was, "Carelessness on the part of the doctor who attended at the birth."

The following is a resolution offered by Dr. Reber:

Whereas, It has been increasingly shown that much of the blindness incident to injury and disease is largely preventable, and,

Whereas, The intelligent resort to ordinary, every-day means and methods in the manufacturing establishments of the State of Pennsylvania would greatly reduce the number of partially and wholly blind persons, thus relieving the State of a grievous burden; be it, therefore,

Resolved, That the Section on Eye, Ear, Nose and Throat Diseases of the Medical Society of the State of Pennsylvania recommend to the general body of the Society that a permanent committee be formed, to be known as the Committee on Prevention of Blindness and Conservation of Vision, to act in conjunction with the American Association for the Conservation of Vision.

Dr. Alexander B. Hampsey, Pittsburg.—I would suggest, if Dr. Reber would consent to it, an amendment to that resolution, by adding, after the words, "American Society for the

Conservation of Vision," the words, "and other societies working in the same direction."

Dr. Reber.—I accept that amendment.

Dr. Hampsey.—I would also make a motion that Dr. Reber be appointed a committee of one to present this amended resolution at the General Meeting of the Society this afternoon. (The motion was seconded and carried.)

Dr. Wendell Reber, Philadelphia.—With the consent of your Chairman, I wish to present an Object Test-Card that I have recently devised for the use of children. The increasing habit of teaching children to read without learning the alphabet has imposed upon us more difficulties in testing the vision of small children. Being convinced of the insufficiency of certain object test-cards, I have tried to devise an object test-card made on the five-minute angle and one-minute angle, and dealing with objects familiar to children, so that they could be able to name them properly. Playing cards are excellent things in certain circumstances, but I cannot imagine what they were doing on an object test-card. I have, therefore, drawn up this card which you see. I have objections to this test-card also. I have no hesitation in calling attention to its defects, because it is of my own device. The horse, for instance, is drawn in too heraldic a fashion, so that children find difficulty in naming it. The rest of the objects, they get pretty well. It was made in India ink before I had it struck off. I feel that there might be some objection to this object also, though the children generally correctly call it a cat. The rest of the objects are pretty easily named by children. In Philadelphia, six, seven or eight-year-old children give pretty poor results with the test cards. I should like to know Dr. Thorington's views on this point.

Dr. Howard F. Pyfer, Norristown.—It is the rule to accept the findings of the test-card as the court of last appeal; this I do not believe should be the case in these card tests in children. They are very suggestive, and Drs. Reber and Thorington deserve credit for simplifying the chart by using familiar objects. I have used these charts to keep a record, but never prescribe from them.

Dr. Edward B. Heckel, Pittsburg.—Every little aid helps in dealing with children. It is surprising how good the memory of the average child is; and it is not uncommon to find a child that can read a chart off from memory, when he has seen it only once before, three or four days previously. I learned to

eliminate memory some years ago. I had a series of cards made according to the one-minute and five-minute angle. I also had a triangular box made. A wooden rod ran through the center of it in such a manner as to revolve. A groove was made for the reception of these cards. The top card would slide in, and reduce in size on sight.

Dr. Heckel.—I believe that the illumination ought to be general. I have known this practised by some men, especially in Pittsburg, where it is usually cloudy and smoky. I have my room illuminated by a set of small, short, very small chandeliers, with sixty-power Tungsten lamps. That is best, because we do not go around looking at illuminated objects, as a usual thing.

Surgical Treatment of Orbital Cellulitis.

Dr. Howard F. Hansell, Philadelphia.—In nearly sixty per cent of the cases, orbital cellulitis is dependent upon disease of adjacent sinuses. The communication is direct, through necrosed walls; or indirect, through the lymph system. The treatment includes, first of all, remedies, medical or surgical, directed to the causative inflammation in one or more of the sinuses. Frequently repeated examination of the accessory cavities by the most powerful transilluminative lamps is indispensable. Direct surgical treatment means free incision with a sharp, narrow scalpel (Graefe cataract knife), and drainage.

DISCUSSION. Dr. Edward B. Heckel, Pittsburg.—I regret that Dr. Hansell was not here, so as to get the benefit of the other papers in the symposium and the discussions on them. I agree with what he has said as to the non-surgical and surgical character of some of his cases. As he has pointed out, some of them subsided without any interference. In these cases, it was perhaps only an edematous condition.

As to the surgical interference, of course, the old dictum that when pus is present, it would be let out, should be followed; and the incision should be made with a narrow, sharp lance—not only sharp-pointed, but the lance itself should be sharp. Frequently the mistake is made of using knives not thoroughly sharp; and the operators cannot do so good work as if they had a sharp knife. The ordinary cataract-knife is the best, after all.

If there is a place about the orbit that is pointing, the incision should be made through that. I do not hesitate even to make it through the skin of the eyelid, if that seems to be

the only point where fluctuation can be obtained, instead of drawing up the lid. By making an incision that way, or even through the skin, so as to escape the eyeball, there is absolutely no danger associated with the operation. The incision should be made deep; so that if there is any pus, it can get out. I do not see why we should hesitate to make several other incisions.

Dr. Howard F. Pyfer, Norristown.—The answer to the problem to incise and reach the pus is by finding the most sensitive point by pressure with a probe. Inject some novocaine, and an incision can then be made with a sharp knife at the most painful point. The incision can then be followed with a long-bladed scissors to near the apex of the orbit. Open the scissors, and the pus will gush out. If your irrigation solution is ready, the cannula may be pushed to the depth of the wound, and irrigation thoroughly performed. I consider the Krönlein operation unnecessary, except in tumors of the orbit, and believe that operative work to get rid of the diseased portion can as well be done through the nose.

Dr. W. W. Blair, Pittsburg.—I should like to report briefly an account of a case of orbital cellulitis, which occurred in my practice a few months ago. The origin of this case was unusual, inasmuch as the starting point was a diffuse furunculosis in the nose, which led to an abscess in the tear sac; following evacuation of the distended sac, there developed an orbital cellulitis of extreme severity. There was edema of the lids, with extreme proptosis. Altogether, five incisions were made during a period of six or seven days, at different points. These incisions released a large amount of yellow pus. Inoculations made on various media showed staphylococci in pure culture. On account of the extreme prostration of the patient and the apparent severity of the infection, a vaccine was made from the cultures obtained; and this vaccine was administered subcutaneously twice. The end of the case was fairly good, the vision being restored to 6/12. At the present time, the eyeball has completely regained its motility; though there is a certain amount of consecutive atrophy.

Dr. Clarence M. Harris, Johnstown.—Dr. Hansell has spoken of making a diagnosis of sarcoma and finding pus. This reminds me of a case of hard, non-fluctuating tumor inside the orbit. I was unable to state its nature, although I had my suspicions. As a matter of precaution, I took a long needle—longer than the ordinary hypodermic needle, cocainized the

eye thoroughly, had the patient turn his eye to the opposite side, thrust the needle into the tumor and withdrew some pus. It proved to be an ethmoidal empyema, pushing the thin bone over toward the eyeball. Afterwards I used cocaine and adrenalin and managed to exhaust a lot of pus through the nasal passage. The patient declined operation. In six months he had a recurrence. He was treated by a physician with morphia, until almost dead and was in poor condition generally. When he again got into my hands, an ethmoidal operation was done. We had hemoplegia after that; and finally died, after a resection of the skull. I suspect that he had meningitis or abscess complicating the empyema.

Dr. John B. Corser, Scranton.—I had a case in a boy thirteen years of age, and we are told that cases of this kind do not happen in children. This boy had had a cold; and with it, intense pain in the head—the frontal region particularly. He was attended by a general physician, and I was called by the latter to see the patient on account of this intense pain. I suspected sinus trouble; but, at first, I did not see any condition of the nose warranting operative procedure. An adrenalin-chloride spray was prescribed. Later, I noticed swelling of the upper lid, to the inner side of the margin of the orbit. This increased until the eye was fixed, the eye looking down and out. The condition was then recognized to be probably nasal, though no definite discharge was seen under the middle turbinate. The middle turbinate bone was removed under cocaine and the lower part of the cells of the ethmoid were broken down with a curett. This procedure was followed by improvement of the pain and the condition of the eye. At the end of four weeks, single vision was obtained in all the fields; and the eye has made a complete recovery. It has been a year and a half since then, and he is perfectly well.

Dr. Wendell Reber, Philadelphia.—The Chair wishes to say that he has seen the ophthalmodiaphanoscope to which Dr. Hansell refers, and feels that it is an exceedingly valuable office-instrument. Just now, I have a case under observation in which I should like to have it used. The diagnosis lies between orbital abscess and of the cavernous sinus. The man is exceedingly prostrated. He has a leukocytosis of thirty-two thousand. His pupil is mobile; his accommodation intact. His ocular motions, however, are very much impaired. He has terrific ecchymosis of the lower part of the conjunctiva.

and tremendous swelling of the upper lid, of the kind that we see in cavernous sinus thrombosis. If it is a thrombosis, it is probably not septic. It is a border-line case. The surgeon has been holding a knife over the man for a week, asking me whether he shall go in or not. I referred the patient to the rhinologist, and he referred the man back to me. The surgeon says that he will operate, if I say that the patient has thrombosis of the cavernous sinus; and I have to decide whether the surgeon shall do a capital operation. Only one person has ever recovered from this operation. In another case, I did not hesitate to take a cataract knife and evacuate the pus from the orbit; because there was such induration that the lid could hardly be lifted at all. At the Reading meeting, I reported a case of a little girl supposed to have a sarcoma of the orbit. I evacuated pus rich in the *Bacillus coli communis*. Another patient went into the University Hospital at Philadelphia and the pus was evacuated there by Dr. de Schweinitz.

Dr. Howard F. Hansell, Philadelphia.—I wish to emphasize the importance of the employment of the ophthalmodiaphanoscope in all cases of suspected sinus and orbital disease. By means of this instrument, the light of an eighty-candle-power lamp, augmented to about one-hundred-candle-power by a mirror, is transmitted through the antrums and the ethmoidal cells into the orbit, illuminating the eye and the tissues in its immediate neighborhood, and at once disclosing the presence of a tumor in the anterior part of the orbit or in the eyeball.

My remarks as to the surgical treatment of orbital cellulitis apply only to the purulent or malignant cases. I have never opened the orbit by the Krönlein or other bone operation, but have limited my treatment to repeated puncture of the retrobulbar structures by means of a Graefe cataract-knife or a sharp, double-edged bistoury.

The prognosis, whether pus has been evacuated or not, is not favorable. Should recovery ensue, vision is apt to be destroyed by entanglement of the optic nerve in the purulent inflammation, and subsequent cicatricial contraction; and the mobility of the eye may be lessened or entirely abolished by the involvement of the muscles and the nerves that supply them.

OFFICERS ELECTED FOR THE ENSUING YEAR.

Chairman, Dr. Wendell Reber, Philadelphia, Pa.

Secretary, Dr. C. M. Harris, Johnstown, Pa.

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. Hugh Blake Williams, well known as an ophthalmologist in Chicago, died December 5, 1911.

Prof. V. Hippel of Goettingen, Germany, celebrated his seventieth birthday on October 24th.

Prof. Dr. Emil Emmert, privatdozent in ophthalmology in Berne, Switzerland, is dead.

Dr. John Kyle of Indianapolis has made a successful recovery from his recent appendicitis operation.

Dr. Alexander Pringle of Northfield, Minn., died recently at his former home in Cornwall, Ont., aged 58.

Dr. George McLain of Excelsior, Minn., died in Minneapolis, after an operation for carcinoma, aged 60 years.

Dr. Thomas Hall Shastid of Marion, Ill., has been appointed to the chair of Medical History in the American Medical College, St. Louis.

The Juvenile Court of Memphis, Tenn., has appointed to its staff of eye, ear, nose and throat consultants, Drs. Edward C. Ellett, George H. Savage and Harry F. Minor.

Bulletin of the New York Academy of Science, notes the presentation on November 27, 1911, of a paper by Mr. D. E. Rice, entitled "Visual Acuity Under Lights of Different Color."

Dr. Ovidus A. Griffin of Ann Arbor, Mich., died in that city October 28, of spinal meningitis, aged 39. Dr. Griffin was well known as an ophthalmologist and was formerly demonstrator of ophthalmology and oto-laryngology at the University of Michigan.

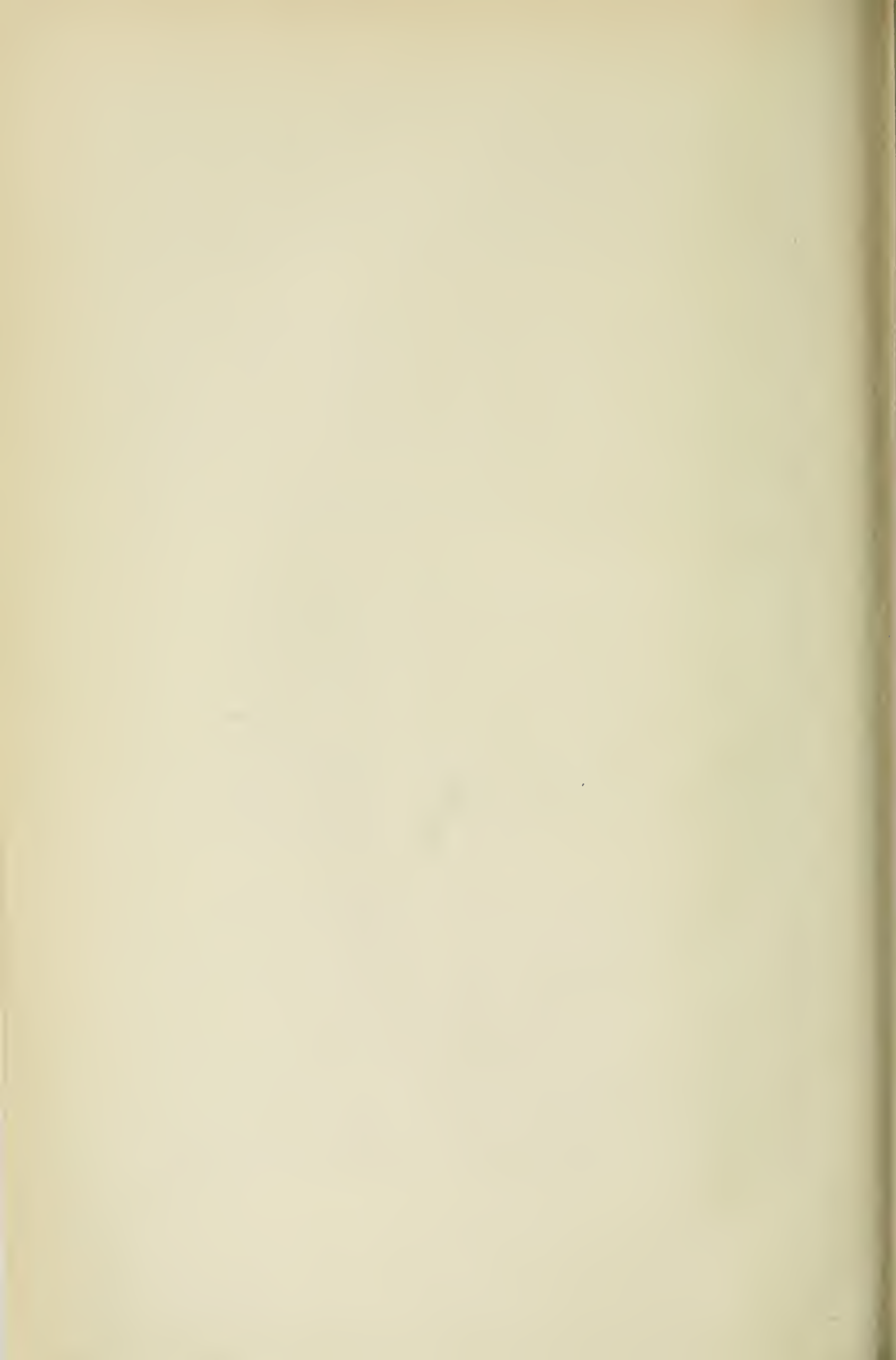
Dr. D. T. Vail offers to send free of charge to any member

of the profession his article on "Smith's Cataract Operation." This is a detailed account of the operation as Smith does it himself. It is illustrated by the author's own sketches. It is only necessary to send your name and address to Dr. D. T. Vail, 24 East Eighth street, Cincinnati, Ohio, and he will mail you a copy.

A very rigid inspection of school children in Pennsylvania has been instituted by Dr. Samuel Dixon, State Commissioner of Health. He has appointed 500 physicians in 321 boroughs and 460 townships as inspectors, whose duty shall be the careful examination of the children of the district, and notifying the parents when defects of sight, hearing, etc., are found. All defective cases will be reported to Dr. Dixon. The inspection also includes the estimation of the light, air and heating facilities, water supply and the care of water in the rooms.

The Pacific Coast Oto-Ophthalmological Society has been permanently organized. The membership consists chiefly of specialists from Washington, Oregon and California. Meetings are to be held yearly in one of the above states, Washington being the place of the first meeting. The following officers for 1912 were elected: President, Dr. John F. Dickson, Portland, Ore.; vice-president, Dr. Wm. H. Roberts, Pasadena, Cal.; secretary-treasurer, Dr. Cullen T. Welty, San Francisco, Cal. Executive committee: Dr. Wm. A. Martin, San Francisco, for one year; Dr. Henry La Mantle, Seattle, Wash., two years; Dr. John F. Dickson, Portland, Ore., three years.

Two large volumes, containing over 1,000 pages and a number of illustrations, comprise the Jubilee publication of Prof. Carlo Raymond's works. They have recently been distributed to the subscribers and form a complete account of the life and labors of that genial father of ophthalmology. Prof. Raymond was born in Savoy the 26th of October, 1833, and during a long life has done meritorious work and added much to the glory, not only of Italian medicine, but of ophthalmology in general. Those Americans who have had the pleasure of meeting Prof. Raymond will remember his unfailing courtesy, his charm of manner and his thorough knowledge of the surgical specialty to which he devoted his life.



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